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# Electrical Contracting

With Which Is Incorporated  
The Electragist

April  
1931

## Announcing an IMPORTANT REVISION

## in the National Electrical Code

Under the revised code  
**STEELTUBES** can be used  
for **CONCEALED WORK**;  
in **MASONRY WALLS**, and  
**BURIED in CONCRETE**  
(except cinder fill) . . . in  
sizes up to and including  
**TWO INCHES**.

as recommended by the Electrical Committee

**T**HE ELECTRICAL COMMITTEE of the Na-  
tional Fire Protection Association, at their  
annual meeting, held in New York City, on  
February 19, 1931, revised Section 508 of the  
National Electrical Code as follows:

**h. This paragraph  
amended as  
follows:**

Electrical Metallic Tubing shall  
not be used for interior wiring  
systems of more than 300 volts,  
unless wires and cables are of  
lead-covered type, nor for con-  
ductors larger than No. 6.

Installation or afterwards it will  
not be subject to severe mechan-  
ical injury nor to corrosive va-  
pors. It may be cast integral with  
concrete slabs (except cinder fill)  
or buried in masonry walls, if  
provided with waterproof-fittings.

**n. Amended as  
follows:**

The number of wires (none larger  
than No. 6) contained in any run  
of Electrical Metallic Tubing shall  
not exceed that given in Tables 1  
and 2, Section 503 of this arti-  
cle. The maximum size of tubing  
which may be used with any num-  
ber or combination of wires is  
2-inch nominal trade size.

**i. This paragraph  
amended as  
follows:**

Electrical Metallic Tubing may be  
used for open or concealed work  
in dry locations where during in-

Electrical Division

**STEEL AND TUBES, INC.,**  
Cleveland, Ohio

(A Unit of Republic Steel Corp.)

# Steeltubes

**STEELTUBES**  
Electrical Metallic  
Tubing is threadless,  
strong, light and easy  
to handle. It makes  
electrical dollars go  
further.



# FIRST

*At the turn of the Century, the industrial plant's own maintenance man attempted the dozen and one unusual jobs that developed with amazing regularity.*

# THEN

*When the Electrical Age began to hit its stride, the electrical manufacturer's specialist served customers near and far . . . but his territory was scattered, his calls often delayed.*

# NOW

*Industry can obtain promptly the assistance of Specialists in illumination, power-apparatus applications, electrical construction problems, etc. . . . from more than 80 General Electric Supply Corporation warehouses, strategically located throughout the United States.*

You can obtain prompt delivery of *everything electrical* from a General Electric Supply Corporation wholesale warehouse near you.



**GENERAL  ELECTRIC**  
**SUPPLY CORPORATION**



# Electrical Contracting

VOLUME 30

With which is incorporated The Electragist

NUMBER 6

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## Resale Price News

Slight increases in prices were made during the past month in a few products. The increases were made in:

Outlet boxes and covers  
Fuses and fuse wire  
Wires

BX and A.B.C. cable prices were slightly reduced.

Minor price adjustments and rearrangement of listings were made in switch boxes, sundry receptacles, entrance switches, Seco meter service switches, universal meter service switches and Bulldog 30 amp. service entrance switches.

Additions to the listings include Kruse switch box supports; E.Z. insulated solderless wire connectors; Adaptilets; clips for loom; Arrow, Hart & Hegeman, Bryant and Trumbull motor starting switches; Acco entrance range and lighting switches; Columbia entrance range and lighting switches; Murray entrance range and lighting switches; Edwards telephone and thermostat wire.

Cutler-Hammer motor starting switches and Horoelectric time switch listings have been increased.

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# COMPLETE

## 6 COMPLETE WIRING SYSTEMS

*and*

## FITTING

### 1 RIGID STEEL CONDUIT

- (a)  SHEARBOND and TREATED and CLEAR ENAMELED.
- (b)  ECONOMY, BLACK ENAMELED.
- (c)  OVAL DUCT, UNDER-PLASTER OVAL CONDUIT, THREE WIRE SYSTEM.
- (d)  DUCT FOR UNDER-FLOOR CIRCUITS, HIGH AND LOW POTENTIAL.

### 2 FLEXIBLE STEEL CONDUIT

- (a)  FLEXIBLE, FLEXIBLE STEEL CONDUIT, SINGLE OR DOUBLE WIRE.
- (b)  STEELFLEX and BRASSFLEX FLEXIBLE CONDUIT FOR AUTOMOBILE WIRING.
- (c)  FLEXIBLE STEEL HEATER and CARBURETOR TUBING, TIGHTLY JOINED FOR CARRYING GASES.
- (d)  FLEXIBLE STEEL OR BRONZE PRESSURE HOSE, ASSEMBLED FOR CONVEYING STEAM OR GAS.

### 3 STEEL ARMORED CABLE

- (a)  NATIONAL FLEXSTEEL, A.B.C. DOUBLE ARMORED CABLE WITH EXTRA ARMOR and ANTI-SHORT BURNING.
- (b)  FLEXSTEEL, ONE TO FOUR CONDUCTORS PROTECTED BY DOUBLE STRIP FLEXIBLE STEEL ARMOR.
- (c)  DOUBLEFLEX, FLAT STEEL ARMORED CABLE FOR SURFACE and UNDER-PLASTER TWO OR THREE WIRE CIRCUITS.
- (d)  REINFORCED LAMPCORDS PROTECTED BY ALLCOVER RUBBER SHEATH and FLEXIBLE STEEL ARMOR.



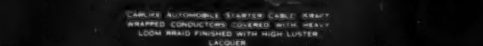
### 4 METAL MOLDING

- (a)  FLAT RACEWAY FOR FOUR WIRES, SEPARABLE CAP AND BASE.
- (b)  FLAT RACEWAY FOR TWO WIRES, SEPARABLE CAP AND BASE.

### 5 NON-METALLIC FLEXIBLE CONDUIT

- (a)  FLEXURE FLEXIBLE WOVEN CONDUIT, IS MOISTURE and FLAMEPROOF PROTECTION TO WIRING.
- (b)  AUTOGUARD, CLOSELY WOVEN FLEXIBLE CONDUIT, HIGH LUSTER LACQUER FINISH FOR AUTOMOBILE WIRING, MOISTUREPROOF and FLAMEPROOF.

### 6 NON-METALLIC SHEATHED CABLE

- (a)  N.G.W. LOOMWIRED CONDUCTORS, PAPER WRAPPED and ENCLOSED in HEAVY TREATED OVERALL BRAID, SHIELDED WIRE FOR GROUND RETURN.
- (b)  LOOM WIRE NON-METALLIC SHEATHED CABLE, PAPER WRAPPED ENCLOSED in HEAVY TREATED OVERALL BRAID.
- (c)  CABLE AUTOMOBILE STARTER CABLE, HEAVY WRAPPED CONDUCTORS COVERED WITH HEAVY LACQUER.



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SWITCH BOXES.

CONNECTORS.

BONDNUTS.

FIXTURE STUDS.



for Every CONCEIVABLE

National Electric  
National Metal Molding

# WIRE BUSINESS

TINGS

*and*

**WIRES  
*and*  
CABLES**



OUTLET BOX  
COVERS.

ECONOMY  
BOXES.

BUSHCAPS.

BOX AND  
BAR SETS.

RECEPTACLES.



## ABLE REQUIREMENT

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Division • Pittsburgh, Penna.



# UNCLE SAM IS A GOOD CUSTOMER

but he wants what he wants as he wants it

# GO

after Government business. There is plenty of it right now when other business is dull.

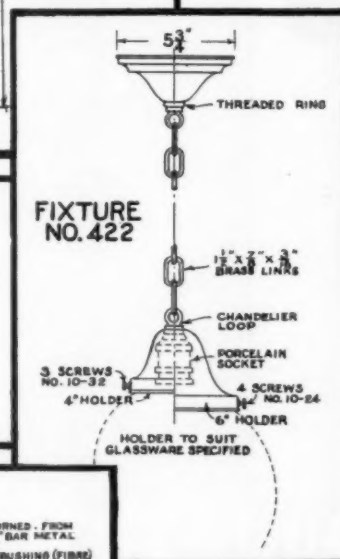
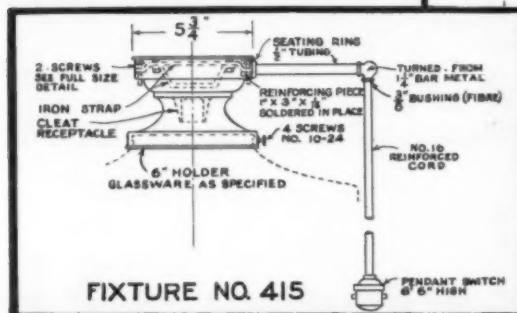
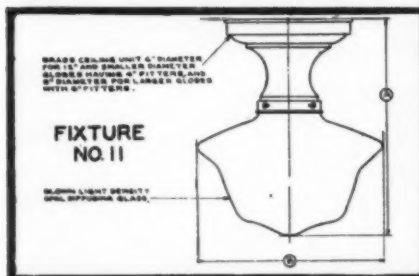
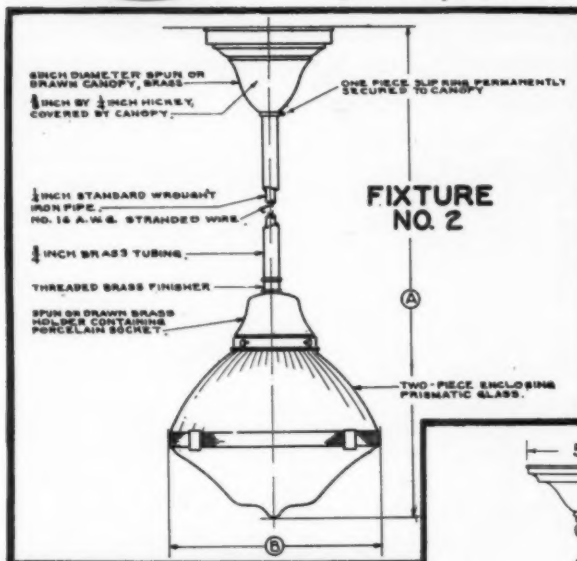
¶Many contractors hesitate to bid on Government jobs because the specifications are strict and must be met to a gnat's eyelash. Don't let that worry you. Wakefield is equipped

to supply fixtures built exactly to the standards established by the U. S. Navy and Treasury Departments and the Veterans Bureau. Thousands of Wakefield Units are installed in Government buildings all over the country.

¶You do not have to bother about the seemingly intricate specifications in bidding on government work. Simply tell us the name of the job and we will

quote, for we receive from Washington all details of every Government requirement as soon as bids are asked for. We have the specifications on file, the dies and tools are always in condition for quick manufacture, the materials are in our warehouse.

¶Uncle Sam is a good customer—strict but sure. With Wakefield co-operation, there is no reason why you should not have your share of his business. Go after it.



The  
**F. W. WAKEFIELD BRASS COMPANY**

Vermilion, Ohio, U. S. A.



## *Four Basic Ideas*

**T**HE electrical industry does not need a Moses to direct its forward movements. The electrical industry does not need some patented plan for developing its market. All that the industry needs is a little bit of hard-headed horse-sense and the willingness to get along with members of other branches of the industry.

Because of the propositions that have been suggested as panaceas for all of our economic woes ELECTRICAL CONTRACTING asks consideration of four ideas that in its opinion must be accepted as basic in any market development program that is to be successful:

1. No part of the program may transgress any of the laws of economics. It must be understood that any agency that can sell or install properly and at a profit is entitled to recognition. If progress is to be made without profit to any group the program is unsound.
2. The program must be a natural, not an artificial development. The public, in other words, must have freedom of purchase, and not be forced by high pressure methods to buy what it has no particular desire for.
3. There must be an equal opportunity for all. Any attempt to

stimulate the sale of certain commodities and not others, any effort to curtail the opportunities of retailers or contractors—anything in fact that would hinder the operation of a free market will militate against the program.

4. Through publicity a public demand for the greater use of electricity in the office, shop, factory and home must be created and laid down like a barrage in advance of the personal selling. This publicity barrage to be effective in the greatest measure should be national and local simultaneously. In the opinion of ELECTRICAL CONTRACTING, the national publicity should be the responsibility of the manufacturers while the central stations should carry the local advertising.

**E**LECTRICAL CONTRACTING is hopeful that something constructive and nation-wide might be started soon to create a broader demand. It must come if the industry is to grow and prosper.

In the past our market has been one largely of new customers. That market is too small now and we must therefore depend on our old customers—and they do not yet know that they need more electric service.

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Still another reason for handling  
Anaconda Wiring Products . . .

# CAREFUL INSPECTION

*throughout manufacture*

Anaconda is one of the few manufacturers  
who make complete tests for quality . . . one  
of the very few who subject *every* foot of  
Rubber-Covered Wire to the "spark" test.

## ANACONDA WIRING PRODUCTS

Rubber-Covered Wire

ABC Armored Cable      Flexible Steel Conduit

Duraduct Loom

Durax Sheathed Cable      Flexible Cords



## ANACONDA WIRE & CABLE COMPANY

GENERAL OFFICES: 25 BROADWAY, NEW YORK

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*Sales Offices in Principal Cities*

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# Electrical Contracting

*With which is incorporated The Electragist*

VOLUME 30

APRIL, 1931

NUMBER 6

## *The* CAT *that* SOLD HIMSELF

By JOHN WISE  
*The Successful Contractor*

ONE morning during a period when business was terrible, I walked out before breakfast to get a paper at the corner. It was a nice day but I couldn't see it. The world was wrong and I hadn't made much effort to get business for sometime—all grouchy and down.

Well, I heard that long drawn "m-e-e-o-w-w-w!", which is any cat's bugle call for eats. I looked across the lawn and saw a cat come out of Thompson's coal-window, heading for me. Our family is dog-crazy and doesn't cotton to cats, but this one stopped me. He was shined up like Astor's pet goat and the grin on his pan was a pleasure to see.

Up he comes, rubs against my leg and says: "Mee-ulk!" as plain as any dairy driver could say it. I looked at our window to get the missus' reaction. First she shook her head. No, but the cat turns and hollers at her and she waved us to come in. I wanted my paper, so I went to the corner first and, boy, but that cat stuck with me—he knew he'd get



the contract and wasn't to be ditched. When we got in the house the missus had no milk and actually gave him cream.

I let him out just as Thompson was getting his early breath of air and darned if the cat didn't play the same thing on him and get away with it. Not only that but when I started for the shop, here was the cat coming out of Allen's house and I give you my word, the little stiff was so full of milk he had a list to star-board.

"Some salesman!" I said to myself, "Homeless, but no bum. He comes out of a coal-cellar neat as a pin, forgets hard times, puts on a big smile and exposes himself to sales. He not only got three orders, but a list of clients good for a nice repeat percentage." That cat did me more good than a course in sales promotion. Yes, sir, I squared the old shoulders, went out among the prospects and before sundown I had two jobs and felt like I could whip the world. When everything's rosy, business is after all of us. When things are tight we have to go after business.

# QUALITY OUTS



"WE often get a job by showing the owner samples of the material we will use and pointing out why a job done with this material will be more satisfactory." Thus spoke one of the hundred contractors recently interviewed by field representatives of ELECTRICAL CONTRACTING on the subject of how important is quality.

Eighty-six percent of these contractors stated that they are able to sell the higher priced class of material and equipment on their jobs provided that the quality is proportionally better.

Industrial appear to form the best market for quality materials in that 26 percent of the contractors selling quality material stated that they sold industrials. Fourteen percent of these contractors sold quality on commercial jobs. Other types of construction in which contractors sell quality include theatres, public buildings, hospitals, schools, better class residences, utilities and appliance sales companies.

Nineteen percent of these contractors stated that they sell quality on all classes of construction. However, it is noted that these contractors do only a strictly selective type of work and on either a time-and-material basis or on a contract at their own price.

That contractors know the value of selling only quality material is shown in their statements on the subject, a few of which are quoted:

"We find that the unreliable contractor talks price almost exclusively when he sells a job and thereby brings suspicion on himself. We talk quality and usually sell quality jobs."

"Too many contractors are using cheap material and offering low prices. If we do as the rest of them we have only a slight chance of getting the job. Our selling point is to show the owner that we will use a higher quality material than anyone else who is bidding on the job."

"We have one builder who sells as many homes as anyone in our city and an important part of his selling talk is on convenient wiring."

Eighty-six percent of the contractors also stated that in their experiences they have found it possible to sell quality in competition with price. Of course, the sale of quality material was limited to certain conditions. Twenty-three percent of these contractors stated that they could sell quality to old customers or to customers

*Electrical Contracting, April, 1931*



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## 100 Contractor Survey No. 1

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Quality material and equipment is the subject of the first of a series of surveys conducted by Electrical Contracting among 100 contractors

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# SELLS COMPETITION

who are educated to the value of quality. Seventy percent could sell quality when dealing with the owner or with a customer who is interested in a project as a sound investment or for his own use. Nineteen percent said that quality could be sold wherever durability or dependability is paramount.

**T**HERE is a wide variation among contractors in the percentage of their customers demanding quality. It varies from zero to one hundred percent, the average being fifty-eight percent. The higher percentages were found among contractors making a definite attempt to sell quality and, therefore, the percentage figure includes many customers who were sold on quality by the contractor and who, previous to that time, did not demand quality. As one contractor said, "We have customers who have been on the books 18 and 20 years. These are customers who demand quality. Those who want price are with one contractor today and with another tomorrow, whichever is the cheapest at the time." This contractor is very active in building more permanent customers.

**L**IKEWISE the business obtained on a strictly price basis varies among contractors from zero to 100 percent. The average business obtained on a price basis is 39

percent of the contractors' total business. However, with a large percentage of this business obtained on a price basis, the competitive prices are based on quality material. This is shown in the fact that 86 percent of the contractors interviewed do not regulate the quality of materials used on each job by the price obtained for that particular job and that 76 percent of the contractors commenting on why they do not regulate price stated that they get the price for quality materials.

Ninety-two percent of the contractors who make a practice of installing the better quality of material

### SPECIALISTS SELL QUALITY WIRING MATERIAL



stated that this fact helped them in obtaining jobs regardless of price competition. Of these contractors, 70 percent stated that this was due to the fact that good work depended on quality material and because of their reputation for good work, and the previous experience these customers had with good work, they were able to sell jobs regardless of price competition. One contractor stated, "Knowledge counts more than price. The owner comes to the contractor because that contractor has a reputation for doing good work. Of course, it is obvious that to do good work the workman must have good materials as well as skill."

**I**N building a reputation, 90 percent of the contractors interviewed found the use of quality materials important. Sixty-one percent of these contractors stated that the use of quality materials resulted in jobs standing up longer and being more dependable, thus making for satisfied customers who, not only become regular customers, but who recommended them to others. Nine percent of these contractors stated that they were held responsible and if material failed on a job they had to replace it. Six percent stated that they guaranteed their work and consequently were obliged to use only quality material for their own protection.

Dependability was the appeal found most effective in selling quality. Fifty-three percent of the contractors found it one of the most effective. Fifty-one percent of the contractors found durability effective and 39 percent found the argument of final economy effective. Twenty-five percent used the features of improved operation as a selling point and 16 percent find that the guarantee is effective in selling quality. Other effective appeals are safety, appearance and standardization.

**I**N determining the degree of quality for material to use on their jobs, contractors are not satisfied with material merely passing the Underwriters' requirements. Eighty-four percent of all contractors interviewed stated that the Underwriters' requirements were not good enough for material they used. More than 29 percent of these contractors stated that the Underwriters' inspection did not take into consideration installation costs and, therefore, could not be relied upon for their work. As one contractor stated, "I bought some wire once at a saving of from \$3.00 to \$4.00. I had two industrial jobs, on the first of which I used a higher-priced wire taking a day and a half to pull in. On the second job I used the cheaper wire and it took three days to

pull in, thus running the labor costs far above the saving in wire."

**O**THER reasons given for material not being satisfactory if merely passed by the Underwriters' Laboratories were (1) the Underwriters' inspection is a measure of safety only; (2) it does not take into sufficient consideration durability and dependability; (3) it does not approve in view of special applications, and (4) it is an absolute minimum of quality. One contractor stated that in all of 1930 he had only one service call among all the theatre installations he had made. He doubted if any concern satisfied with Underwriters'

approval of material and handling as much work, could have so few service calls.

This survey also revealed that contractors who specialize are able to sell a better quality of material on their jobs. Seventy-five percent of the contractors interviewed who specialized found that the fact that they specialized helped them in selling quality materials. Thirty-eight percent of these contractors stated that they were made responsible because of their specialization and 29 percent of them stated that they could sell a better quality of material because their specialization had given them greater experience with certain classes of material and equipment and thus they had become authorities on the subject.

Sixty-nine percent of the contractors interviewed specialize. Twenty-six percent of these specialists specialized in industrial work; 20 percent in commercial work, and 9 percent in residential work. Other contractors were found to specialize in theatres, power, hotels, printing plants, hospitals, telephone work, appliance wiring, schools, quarries, lighting, signs, remodeling, apartments, refrigeration, gas stations, bakeries, dairies, speculative work, garment industry, pumps and motors. Forty-four percent of the specialists said that they specialized because they were able to make a greater profit; and 20 percent because of less competition.

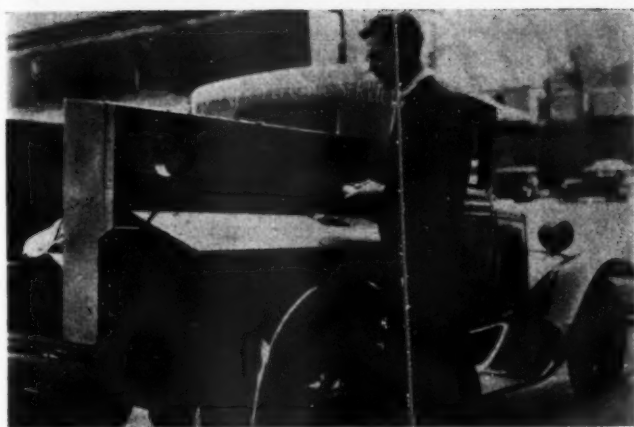
Thus is all reasonable doubt of the contractor's ability to sell quality removed. The 100 contractors interviewed were called on at random by representatives of ELECTRICAL CONTRACTING covering 17 states from coast to coast and from Canada to the gulf. It was found that contractors can and are selling quality material and that the quality is considerably better than Underwriters' requirements; that quality can be sold in competition with price; that contractors are educating their customers to demand quality, and that the specialist finds quality materials a vital part of his service.

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## WHY CONTRACTORS SELL QUALITY MATERIAL

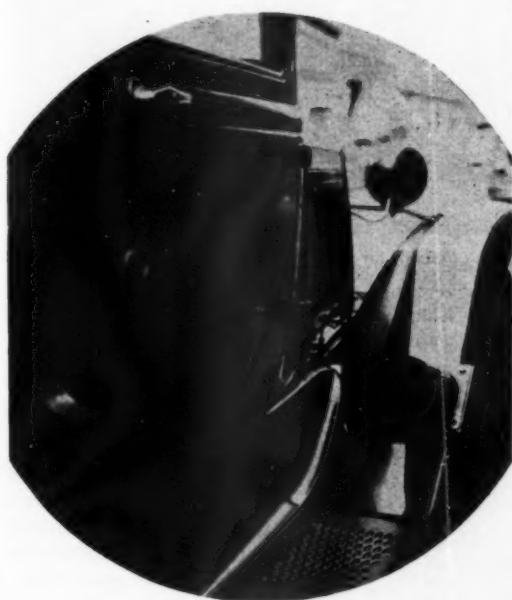
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1. It is more profitable
  2. It eliminates highly competitive bidding
  3. It helps build a reputation
  4. It is durable and dependable
  5. It saves installation labor
  6. It makes sales appeals effective.
-



Small supplies such as fuses, knockout boxes, etc., are carried on the side of the truck in the partitioned shelf and, except when in use, this section is locked. The larger space at the bottom accommodates miscellaneous items.

# A Truck *Arranged for* Small Work



Conduit is carried on the side of the truck and in a position slanting down toward the front. This presses the conduit into the large pipe mounted on the fender which is welded on a steel plate base. When carried in this position conduit can never shake loose. Moreover, as the pipe slants up at the back it removes the danger of injury to any person or damage to any car that may be directly behind the truck.

Ladder is carried on the left side of the truck. Notice that the ladder and spare wheel are arranged to give free access to the cab door. Material not so frequently used is kept on the ladder side and an extra door is made on the end of the supply box so as to permit getting at tools without removing the ladder.

The Gruener Electric Co., Hartford, Conn., finds that a neat efficient truck suggests that the electrician is a capable, responsible workman and as well as speeding up work on small jobs it is one of the best possible advertisements for the business.



Tool boxes and wire are kept in the space between the supply boxes and held in place when the tail gate is shut.





# Specialty Wiring Pays Overhead

**I**N 1927 the Gamp Electric Co., St. Louis, Mo. conceived the idea that there were opportunities being overlooked in wiring for specialty appliances such as refrigerators, oil burners, etc. Steps were immediately taken to specialize in and obtain this business. And, as a result, this company has since that time made installations for 15,000 refrigeration units and more than 3,000 oil burners, stokers and other furnace equipment.

This business has been so successful that it has more than paid the overhead for the entire organization which operates in the industrial and larger commercial fields.

In making plans to get this class of work it was decided that improved installation methods and service would have to be the selling arguments and that in no instance could highly competitive prices be resorted to.

Refrigeration offered the first opportunity as multiple refrigeration was then being successfully applied in apartment houses. It was found that trouble was being encountered in running the copper tubing in a tin shield. Also there was some labor trouble as to what trade should install this work.

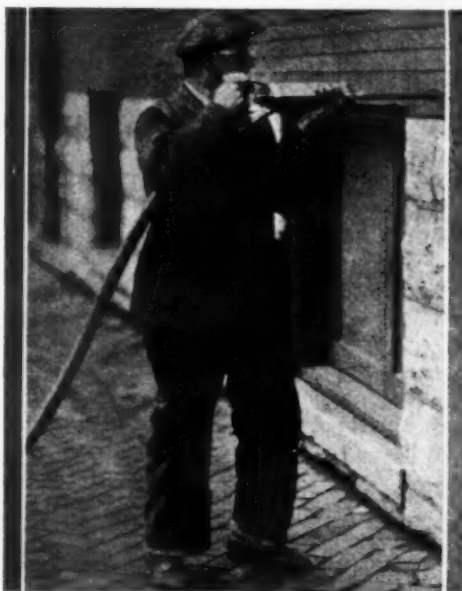
After studying the situation



*Selling an improved installation removes price competition.*

the Gamp Electric Co. made the suggestion to the refrigerator companies that 1½ in. conduit be used in place of the tin shield. It was tried out and because of the perfect protection and smooth interior finish it proved very successful, and of course, the Gamp Electric Co. got the work. Then lead collars were developed for the special boxes at each floor. All conduit had to be butted at the couplings and no drop could be allowed in horizontal runs. Thus problems were presented and solved.

This class of work increased rapidly and the solving of additional problems brought additional work. In making installations in old apartments, labor-saving tools such as electric hammers were used wherever possible. Special trucks were outfitted with supplies and tools for this class of work and men taken from the company's construction forces were specially in-



*Labor saving tools are used frequently.*



structed in appliance installation work.

In this way the refrigeration business developed and finally resulted in this company making more than 90 percent of the apartment refrigeration installations in the city.

Then came the extensive sale of residential refrigeration. Here flat rate competition was encountered. This competition was broken down with one customer through the argument that service would be a real sales asset to that customer and that the Gamp Electric Co. guaranteed service. When an installation was promised on a certain day, it would be made on that day. As this guarantee was lived up to, the other refrigeration sales companies were not long in following suit.

Then the installation of oil burners, stokers and furnace fans followed. All of this work is obtained on the same service and quality policy. The company is now busily engaged in electric pump installation for gasoline stations which is a similar class of work.

Thus, through specialization, the peaks are taken out of the business, credit risks are improved and every job makes a profit. This company can and does select its customers carefully by their credit rating.

All specialty wiring is handled on a strictly time-and-material basis and all customers pay exactly the same for similar work regardless of whether they have one job or a hundred to be done. The men fill out sheets giving labor and material for each job and a girl who knows nothing of electrical work,

*Electrical Contracting, April, 1931*



*Service cars are specially outfitted for specialty wiring.*

---

## Specialization Case Study No. 3

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bills the job from a unit price book used for all work. Occasionally a customer complains at the price but

this company maintains a rigid policy on this subject and when the customer wants service it is found that he always comes back.

The only price competition on this class of work that this firm enters into is when competing with an appliance sales company's own crew

and this competition is made without cutting prices. It is an easy matter to demonstrate to a company doing its own work that it is considerably cheaper in the long run to have the Gamp Electric Co. handle their work on a time-and-material basis. A considerable amount of work

from companies employing their own crews has been obtained on this basis.

Thus, it is the specialty of an admirable adjunct to the electric construction business. Because of the specialization, other contractors have no ill feeling when going on their jobs; in commercial installations, opportunities for other types of electrical construction are oftentimes revealed and sold, and the direct profits from this specialization equals the entire overhead for all operations.



*The guaranteed service given is sold as an asset to the appliance sales organization.*

# How to Prepare Accurate Estimates

By RAY ASHLEY

*Chief Estimator and Engineer,  
Electrical Survey Bureau, Chicago.*

The fourth of a series of articles showing a successful Method of estimating which is extremely comprehensive yet easy to check or revise. The previous articles explained the numerous forms used and the taking off of lighting branch wiring

## DISTRIBUTION SYSTEMS

IT should not be inferred from the statements made in this article, that the writer considers estimators careless or indifferent toward their work. Quite the contrary, but common errors are emphasized, merely to bring out the importance of using the best known methods of figuring distribution systems.

The mastering of a good system for estimating the cost of electrical distribution does not, in itself, seem to offer any great difficulty; the habit of regularly applying the system, does, however, seem hard to acquire. Sir Edmund Burk's statement, "The March of the human mind is slow," is well verified in this branch of estimating.

An estimator may demonstrate to himself the value of a certain method, yet will persist in trying to save time by using others. The greatest difficulty arises from trying to figure without a well laid out riser diagram showing all of the feeders and distribution centers.

A properly engineered job will provide a riser diagram, but many plans and specifications turned out are far from being complete. If there is no "riser diagram," one should be made before any of the quantities, in connection with the distribution, are taken off.

The value of such layouts for the work to be figured is evident from the fact, that after checking several jobs of various sizes, it was found that errors in con-

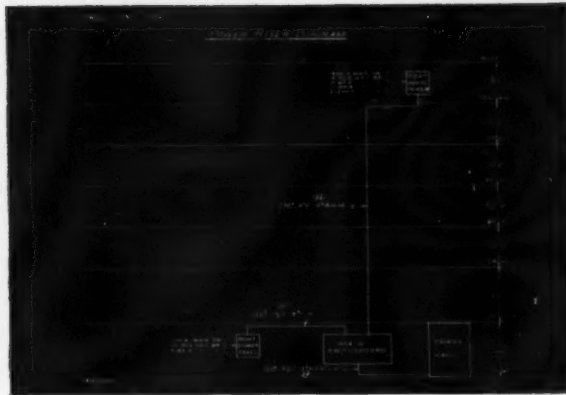
nection with feeders and distribution centers were more serious on small jobs than on large ones. A further check revealed the fact that most of the errors occurred where no definite layout had been made. From the standpoint of dollars and cents, it was found that the most serious errors in the whole estimate appeared in connection with the distribution system. This check was not confined to any particular type of job, nor to the work of estimators from any one firm.

Plans that appear completely laid out, should be carefully checked to see that nothing has been omitted. If feeders and distribution centers are clearly specified, the layout should be made regardless. Everything may seem completely covered by specifications, but when laid out in the form of a distribution plan, many things will be found missing. Besides, a carefully laid out plan will reveal much more than specifications. It is more easily checked, shows where pull boxes and fittings will be required and gives a much better idea of the labor to be figured for the installation.

ONLY the very simplest jobs should be figured without a distribution layout. Drawings are always a simple and comprehensive record of how the job was figured. It is not necessary to have an elaborate drawing, but every item should stand out plainly, and crowding should be avoided as shown in the accompanying diagrams.



**Light Riser Diagram.** If no riser diagram is furnished one should be made prior to the taking off of any quantities in connection with the distribution system.



**Power Riser Diagram.** Every item should stand out plainly and crowding should be avoided. Frequently letters are preferred in designating power feeders.

The drawings of the distribution systems should show the following:

1. Distribution Centers
2. Equipment on panels
3. Feeder Runs
4. Size of conduits
5. Size of wires
6. Number of wires per conduit

7. Number of feeders (assigned by estimator)
8. Cable supports.
9. Pull boxes
10. Offset in risers
11. Length of runs

The light and power feeders may be shown together or divided as the estimator wishes. There are points in favor of, and against each method. If they are

FEEDER SCHEDULE														
JOB OR BUILDING <i>Aberdeen State Bank</i>					EST. NO. <i>1334</i>					DATE <i>6-22-36</i>				
EST. BY <i>Harry Bink</i>					CHECKED BY									
FEEDER NO.	QUANTITY	SIZE	TYPE	FROM	TO	10' C.	1 1/2' C.	2' C.	2 1/2' C.	3' C.	4' C.	4 1/2' C.	5' C.	5 1/2' C.
--- Light Feeders ---														
1	110	3	MMAL	1 1/2"	Panel	Switchboard						110		
2	110	3	MMAL	1 1/2"	"	"						110		
3	110	3	MMAL	1 1/2"	Switchboard	Store Dist.						110		
4	110	3	1/2"	1 1/2"	"	Work Space						110		
5	110	3	1/2"	1 1/2"	"	Pub. Lt. Panel						110		
6	110	3	1/2"	1 1/2"	"	Lodge R. Dist.						110		
7	110	3	1/2"	1 1/2"	"	Roof Sign						110		
8	110	3	1/2"	1 1/2"	"	Office Dist.						110		
9	110	3	1/2"	1 1/2"	"	Bank Panel						110		
10	110	3	1/2"	1 1/2"	Store Dist.	Store 1/2"						110		
11	110	3	1/2"	1 1/2"	"	"						110		
12	110	3	1/2"	1 1/2"	"	"						110		
13	110	3	1/2"	1 1/2"	"	"						110		
14	110	3	1/2"	1 1/2"	"	"						110		
15	110	3	1/2"	1 1/2"	"	"						110		
16	110	3	1/2"	1 1/2"	"	"						110		
17	110	3	1/2"	1 1/2"	Switchboard	Bank Panel						110		
18	110	3	1/2"	1 1/2"	Office Dist.	Measuring Rm.						110		
19	110	3	1/2"	1 1/2"	"	"						110		
20	110	3	1/2"	1 1/2"	Lodge Dist.	Dimmer 1/2"						110		
21	110	3	1/2"	1 1/2"	"	"						110		
22	110	3	1/2"	1 1/2"	"	"						110		
23	110	3	1/2"	1 1/2"	Switchboard	Gen. Serv. Sw.						110		
Totals						670	610	280	100	210	220	1000	550	670
--- Power Feeders ---														
24	110	3	MMAL	1 1/2"	Panel	Switchboard						110		
25	110	3	1/2"	1 1/2"	Switchboard	Bank Panel						110		
26	110	3	1/2"	1 1/2"	"	"						110		
Totals						20	110	110				110	110	

**Feeder schedule.** The lighting feeders are listed by number from 1 to 23 as given on the riser diagrams. The power feeders are from 24 to 26.



OUTLET, CIRCUIT & FEEDER SCHEDULE														
JAMES H. T. Loughlin - Residence - 10000 Lake Forest, Illinois														
Drawn by: Van Salsen, Inc. - 10000 Lake Forest, Illinois														
Sheet No. 1 of 10 - 10000 Lake Forest, Illinois														
Feeder	Size	Length	Area	Volume	Weight	Cost	Notes	Feeder	Size	Length	Area	Volume	Weight	Cost
1	1/2"	10'	0.001	0.001	0.001	0.001		1	1/2"	10'	0.001	0.001	0.001	0.001
2	1/2"	10'	0.001	0.001	0.001	0.001		2	1/2"	10'	0.001	0.001	0.001	0.001
3	1/2"	10'	0.001	0.001	0.001	0.001		3	1/2"	10'	0.001	0.001	0.001	0.001
4	1/2"	10'	0.001	0.001	0.001	0.001		4	1/2"	10'	0.001	0.001	0.001	0.001
5	1/2"	10'	0.001	0.001	0.001	0.001		5	1/2"	10'	0.001	0.001	0.001	0.001
6	1/2"	10'	0.001	0.001	0.001	0.001		6	1/2"	10'	0.001	0.001	0.001	0.001
7	1/2"	10'	0.001	0.001	0.001	0.001		7	1/2"	10'	0.001	0.001	0.001	0.001
8	1/2"	10'	0.001	0.001	0.001	0.001		8	1/2"	10'	0.001	0.001	0.001	0.001
9	1/2"	10'	0.001	0.001	0.001	0.001		9	1/2"	10'	0.001	0.001	0.001	0.001
10	1/2"	10'	0.001	0.001	0.001	0.001		10	1/2"	10'	0.001	0.001	0.001	0.001
11	1/2"	10'	0.001	0.001	0.001	0.001		11	1/2"	10'	0.001	0.001	0.001	0.001
12	1/2"	10'	0.001	0.001	0.001	0.001		12	1/2"	10'	0.001	0.001	0.001	0.001
13	1/2"	10'	0.001	0.001	0.001	0.001		13	1/2"	10'	0.001	0.001	0.001	0.001
14	1/2"	10'	0.001	0.001	0.001	0.001		14	1/2"	10'	0.001	0.001	0.001	0.001
15	1/2"	10'	0.001	0.001	0.001	0.001		15	1/2"	10'	0.001	0.001	0.001	0.001
16	1/2"	10'	0.001	0.001	0.001	0.001		16	1/2"	10'	0.001	0.001	0.001	0.001
17	1/2"	10'	0.001	0.001	0.001	0.001		17	1/2"	10'	0.001	0.001	0.001	0.001
18	1/2"	10'	0.001	0.001	0.001	0.001		18	1/2"	10'	0.001	0.001	0.001	0.001
19	1/2"	10'	0.001	0.001	0.001	0.001		19	1/2"	10'	0.001	0.001	0.001	0.001
20	1/2"	10'	0.001	0.001	0.001	0.001		20	1/2"	10'	0.001	0.001	0.001	0.001
21	1/2"	10'	0.001	0.001	0.001	0.001		21	1/2"	10'	0.001	0.001	0.001	0.001
22	1/2"	10'	0.001	0.001	0.001	0.001		22	1/2"	10'	0.001	0.001	0.001	0.001
23	1/2"	10'	0.001	0.001	0.001	0.001		23	1/2"	10'	0.001	0.001	0.001	0.001
24	1/2"	10'	0.001	0.001	0.001	0.001		24	1/2"	10'	0.001	0.001	0.001	0.001
25	1/2"	10'	0.001	0.001	0.001	0.001		25	1/2"	10'	0.001	0.001	0.001	0.001
26	1/2"	10'	0.001	0.001	0.001	0.001		26	1/2"	10'	0.001	0.001	0.001	0.001

On small jobs the riser take off and outlets can be combined on one sheet.

shown together the numbers should be arranged so that the light and power will be separated when tabulated. In the accompanying sketches, the lighting feeders are numbered from 1 to 23 inclusive, and the power feeders are numbered from 24 to 26 inclusive.

SOME estimators prefer to use numbers for one system and letters for the others. In that case the power feeders in the accompanying diagram would be lettered A, B, and C.

When the two systems are drawn together, it is advisable to use two colors of lead so that each system will stand out plainly. If a blue print is furnished, one of the systems may be marked out in colored crayon.

The riser should be checked before the quantities are taken off to see that every feeder has a number. The take off sheet should have corresponding numbers. Numbers expedite taking off and checking quantities.

In case of parallel conduits for the same feeder, such as is shown in the accompanying sketch for lighting service from the vault to the switchboard, a separate number should be allowed for each conduit to prevent leaving out a run of conduit or cable.

After the feeders are measured off, the take off sheet should be checked to see that there is a conduit run listed for every number, and to see that there is cable to correspond to every run of conduit. The final summary should also be checked to see that the conduit and wire are in the proper ratio. A total addition of the one way distances may be summed up as a check against the conduit totals.

So that the job will not be held up awaiting prices the complete switchboard and distribution equipment should be listed and the manufacturer called in as soon as possible.

A complete description of the apparatus cannot be put on the pricing sheet, but any notations that can be put down are of value. A lighting panel may be listed—"20 ct. sw in main (Bas. N.)." This information helps establish the cost of installation and accounts for the panel at that particular location.

Power panels may also be listed, giving a brief list of equipment to go on them, thus saving time both in figuring and checking the labor. All pull cable support boxes and fuses should be listed with the switchboards and panels.

The listing of feeder materials should be in the same order on all jobs. The preferred order is:

1. Conduit
2. Elbows
3. Large Fittings
4. Cable
5. Cable Connectors
6. Miscellaneous pipe fittings, etc.

In listing wires, care should be taken so that special items such as "lead covered," "30%," or "parkway" will stand out plainly. If this is not done, the cable may be priced as code rubber covered.

After all the material is listed, a careful comparison should be made with the riser and take off sheets. The various items should then be checked off as they are accounted for on the final pricing sheet. The final pricing sheets, like those previously described for branch lighting are passed on to the pricing and extension clerks.

The final check on this work will be covered along with a discussion of "checking the

completed estimate," to appear in a later issue.

Pricing sheet for light service and feeders.														
James H. T. Loughlin - Residence - 10000 Lake Forest, Illinois														
Drawn by: Van Salsen, Inc. - 10000 Lake Forest, Illinois														
Sheet No. 1 of 10 - 10000 Lake Forest, Illinois														
Feeder	Size	Length	Area	Volume	Weight	Cost	Notes	Feeder	Size	Length	Area	Volume	Weight	Cost
1	1/2"	10'	0.001	0.001	0.001	0.001		1	1/2"	10'	0.001	0.001	0.001	0.001
2	1/2"	10'	0.001	0.001	0.001	0.001		2	1/2"	10'	0.001	0.001	0.001	0.001
3	1/2"	10'	0.001	0.001	0.001	0.001		3	1/2"	10'	0.001	0.001	0.001	0.001
4	1/2"	10'	0.001	0.001	0.001	0.001		4	1/2"	10'	0.001	0.001	0.001	0.001
5	1/2"	10'	0.001	0.001	0.001	0.001		5	1/2"	10'	0.001	0.001	0.001	0.001
6	1/2"	10'	0.001	0.001	0.001	0.001		6	1/2"	10'	0.001	0.001	0.001	0.001
7	1/2"	10'	0.001	0.001	0.001	0.001		7	1/2"	10'	0.001	0.001	0.001	0.001
8	1/2"	10'	0.001	0.001	0.001	0.001		8	1/2"	10'	0.001	0.001	0.001	0.001
9	1/2"	10'	0.001	0.001	0.001	0.001		9	1/2"	10'	0.001	0.001	0.001	0.001
10	1/2"	10'	0.001	0.001	0.001	0.001		10	1/2"	10'	0.001	0.001	0.001	0.001
11	1/2"	10'	0.001	0.001	0.001	0.001		11	1/2"	10'	0.001	0.001	0.001	0.001
12	1/2"	10'	0.001	0.001	0.001	0.001		12	1/2"	10'	0.001	0.001	0.001	0.001
13	1/2"	10'	0.001	0.001	0.001	0.001		13	1/2"	10'	0.001	0.001	0.001	0.001
14	1/2"	10'	0.001	0.001	0.001	0.001		14	1/2"	10'	0.001	0.001	0.001	0.001
15	1/2"	10'	0.001	0.001	0.001	0.001		15	1/2"	10'	0.001	0.001	0.001	0.001
16	1/2"	10'	0.001	0.001	0.001	0.001		16	1/2"	10'	0.001	0.001	0.001	0.001
17	1/2"	10'	0.001	0.001	0.001	0.001		17	1/2"	10'	0.001	0.001	0.001	0.001
18	1/2"	10'	0.001	0.001	0.001	0.001		18	1/2"	10'	0.001	0.001	0.001	0.001
19	1/2"	10'	0.001	0.001	0.001	0.001		19	1/2"	10'	0.001	0.001	0.001	0.001
20	1/2"	10'	0.001	0.001	0.001	0.001		20	1/2"	10'	0.001	0.001	0.001	0.001
21	1/2"	10'	0.001	0.001	0.001	0.001		21	1/2"	10'	0.001	0.001	0.001	0.001
22	1/2"	10'	0.001	0.001	0.001	0.001		22	1/2"	10'	0.001	0.001	0.001	0.001
23	1/2"	10'	0.001	0.001	0.001	0.001		23	1/2"	10'	0.001	0.001	0.001	0.001
24	1/2"	10'	0.001	0.001	0.001	0.001		24	1/2"	10'	0.001	0.001	0.001	0.001
25	1/2"	10'	0.001	0.001	0.001	0.001		25	1/2"	10'	0.001	0.001	0.001	0.001
26	1/2"	10'	0.001	0.001	0.001	0.001		26	1/2"	10'	0.001	0.001	0.001	0.001

Pricing sheet for light service and feeders.

9-22-39 ①

STATE OF Mississippi State Bank

RECEIVED BY

THRU BY

Bank, Storage & Office

H. Reid

MATERIAL

Power Services & Feeders

At Gulfstream Road

2"

2 1/2"

At Gulf, Alabama & Cayuga

2"

2 1/2"

At Type & Candelabra Ave. Canton

At 24 1/2 Wm.

At 24 1/2 Wm.

At 24 1/2 Wm. & Utility Co. Service

QUANTITY	UNIT	PERMANENT	TEMP	STANDARD
100	FT	100	100	100
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# How to Sell High Voltage Service

By L. G. GALE  
Electrical Engineer  
James Wilkinson & Co.  
Boston, Mass



**P**RACTICALLY every industrial specialist has customers who require 550 volt, 3-phase current for power and 115-230 volt single-phase current for light. This is bought either through separate secondary meters or through one 550-volt secondary meter, current for light being obtained through transformers.

When the current consumption is large enough and the demand fairly steady a contractor can usually make quite a saving for his customers and obtain a good wiring job for himself by submitting to his customers a proposal for a primary 2300 volt service.

For example, consider a typical job and figure the current costs on the three different rates, assuming that the monthly power consumption is 36,000 kwh., the monthly lighting consumption is 20,000 kwh. and the demand 160 kw.

The accompanying tables show the current costs and installation costs under various conditions. Schedule

## ENERGY COSTS

### Schedule No. 1—Separate Power and Light Secondary Meters

Lighting Energy Charge:		
1st	2,000 KWH @ 5.5c	\$111.00
Next	5,500 KWH @ 4.5c	247.50
Next	12,500 KWH @ 5.4c	675.00
Power Energy Charge:		
1st	700 KWH @ 5.5c	38.50
Next	2,000 KWH @ 4.1c	82.00
Next	1,000 KWH @ 3.25c	32.25
Next	32,300 KWH @ 2.75c	888.25
Total		\$1,033.00

Total .....\$2,074.00

### Schedule No. 2—500-Volt Secondary Meter

Service Charge:		
	\$ 50.00	\$ 50.00
Fuel Charge:		
	67.10	67.10
Energy Charge:		
1st	3,700 KWH	101.75
Next	1,300 KWH @ 2.75c	35.75
Next	10,000 KWH @ 2.35c	235.00
Next	35,000 KWH @ 2.3c	805.00
Next	6,000 KWH @ 2c	120.00
Total		1,297.50

Total .....\$1,414.60

### Schedule No. 3—2,300-Volt Primary Meter

Demand Charge:		
1st	15 KW @ 4.00	\$ 60.00
Next	40 KW @ 3.00	120.00
Next	100 KW @ 2.50	250.00
Next	5 KW	6.85
Fuel Charge:		67.10
Energy Charge:		
1st	1,500 KW @ 5c	75.00
Next	4,000 KW @ 2.25c	110.00
Next	54,100 KW @ .9625c	520.90
Total		705.90
Total		\$1,210.85

No. 1 gives the energy charge for separate power and light secondary meters as \$2,074.00. Schedule No. 2 gives the energy charge, where a 500-volt secondary meter is used as being \$1,414.60 and schedule No. 3 shows a cost of only \$1,210.85 where a 2300 volt primary meter is used.

The equipment table shows the investment and yearly charges in changing over to a 2300 volt service under different conditions. The table showing the resulting yearly savings gives savings of \$9,757.80 and \$2,105.40 respectively.

The saving of \$9,757.80 is seldom effected as usually a change is made before the consumption becomes so great. However, the saving of \$2,105.40 can often

be made, for very few companies of the size using this amount realize the possibilities of a master meter.

These schedules are, of course, made up for a typical job only and would have to be made up for each individual customer. Such a proposal, however, presents most convincing sales evidence.

## EQUIPMENT REQUIRED

### If Service is Changed from Schedule No. 1 to No. 3

Investment		Fixed Charges Per Year	
3—75 KW A Transformers...	\$1,100.00	Depreciation 8% .....	\$274.00
3—50 KW A Transformers...	900.00	Interest 6% .....	205.50
Primary Oil Switch .....	125.00		
Vault .....	300.00		
Wiring .....	1,000.00		
	\$3,425.00		\$479.50

### If Service is Changed from Schedule No. 2 to No. 3

Investment		Fixed Charges Per Year	
3—150 KW A Transformers...	\$1,800.00	Depreciation 8% .....	\$194.00
Primary Oil Switch .....	125.00	Interest 6% .....	145.50
Wiring .....	500.00		
	\$2,425.00		\$339.50

## YEARLY SAVING

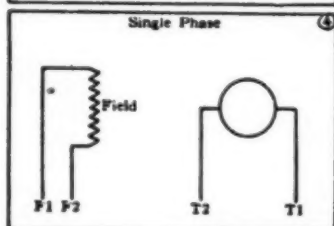
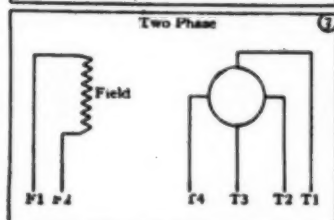
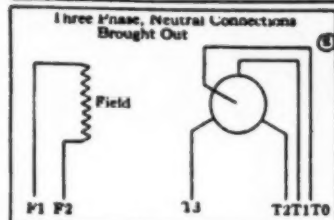
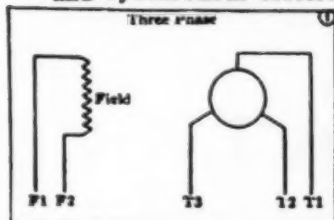
### Effected by Changing from Schedule No. 2 to No. 3

Monthly Energy Charge Schedule No. 1.....	\$2,074.00
Monthly Energy Charge Schedule No. 3.....	\$1,210.85
Fixed Charges	479.50
Schedule No. 3.....	50.00
Per Month	12
Per Year	\$ 813.15
Per Year	\$9,757.80

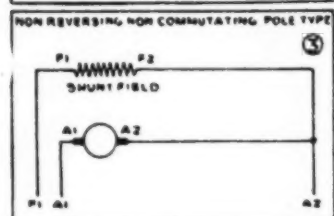
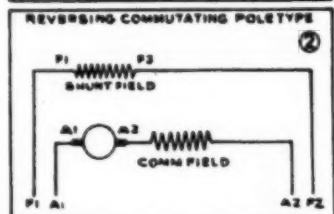
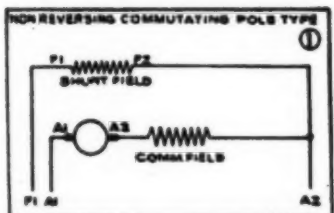
### Effected by Changing from Schedule No. 1 to No. 3

Monthly Energy Charge Schedule No. 2.....	\$1,414.60
Monthly Energy Charge Schedule No. 3.....	\$1,210.85
Fixed Charges	339.50
Schedule No. 3.....	28.30
Per Month	12
Per Year	\$ 175.45
Per Year	\$2,105.40

## A. C. Generators and Synchronous Motors



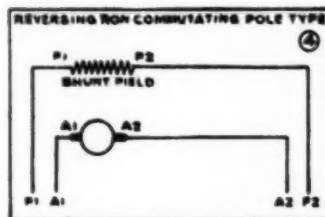
## D. C. Motors, Shunt Wound.



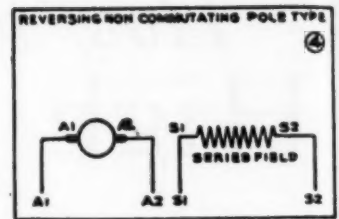
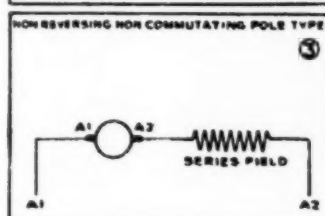
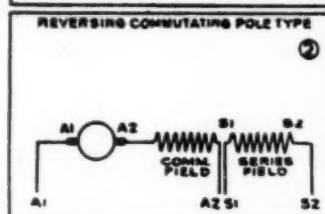
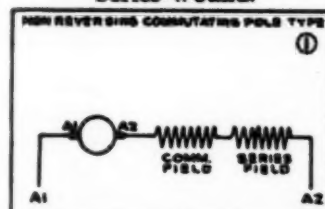
# CONNECTIONS and

## Terminal Markings for Power Apparatus

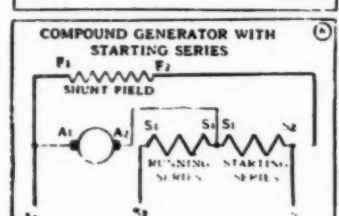
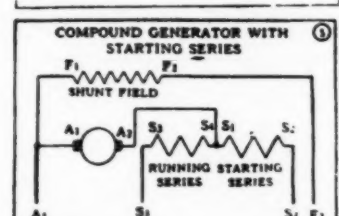
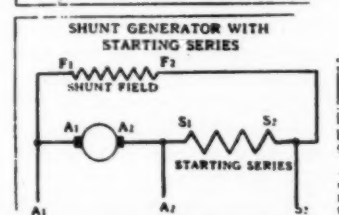
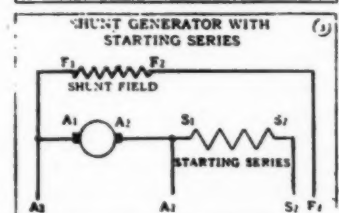
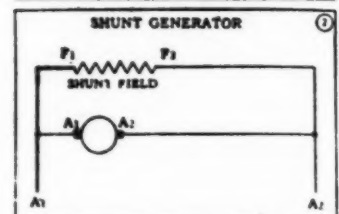
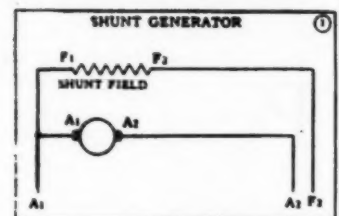
Standard connections and marking of terminals for electric power apparatus, adopted by the National Electrical Manufacturers' Association. The significance of subscript numerals was published in the March issue.



## D. C. Motors, Series Wound.



## D. C. Generators for Farm Lighting Plants.



# Stranded Wire and Cable Sizes

Standard sizes for weather-proof, paper, cambric and rubber insulated single conductor cables and stranded wire as issued by the American Steel & Wire Co.

## EXTRA FLEXIBLE CONCENTRIC STRANDS FOR PAPER, CAMBRIC AND RUBBER INSULATED CABLES

Size of Conductor C. M.	No. of Wires	Diam. of Individual Wire In Inches	O. D. of Strand In Inches
2,000,000	217	.096	1.6320
1,750,000	217	.0898	1.5266
1,500,000	169	.0942	1.4130
1,250,000	169	.0862	1.2930
1,000,000	127	.0887	1.1531
950,000	127	.0864	1.1232
900,000	127	.0841	1.0933
850,000	127	.0818	1.0634
800,000	127	.0794	1.0322
750,000	127	.0768	.9984
700,000	127	.0742	.9646
650,000	127	.0716	.9308
600,000	127	.0687	.8931
550,000	127	.0658	.8554
500,000	91	.0741	.8151
450,000	91	.0703	.7733
400,000	91	.0663	.7293
350,000	91	.0620	.6820
300,000	91	.0573	.6303
250,000	91	.0524	.5764
Gauge (B. & S.)			
0000	61	.0589	.5301
000	61	.0525	.4725
00	61	.0467	.4203
0	61	.0416	.3744
1	61	.0370	.3330
2	37	.0423	.2961
3	37	.0377	.2639
4	37	.0335	.2345
5	37	.0299	.2063
6	37	.0266	.1862
8	37	.0211	.1477
10	37	.0168	.1176
12	37	.1033	.0931
14	37	.0105	.0735

## EXTRA FLEXIBLE COMPOUND STRANDS FOR CAMBRIC AND RUBBER INSULATED CABLES

Size of Conductor C. M.	No. of Wires	Diam. of Individual Wire In Inches	Make-up	O. D. of Strand In Inches
2,000,000	889	.048	127x7	1.872
1,750,000	889	.045	127x7	1.755
1,500,000	637	.048	91x7	1.584
1,250,000	637	.045	91x7	.485
1,000,000	427	.048	61x7	1.296
950,000	427	.0472	61x7	1.2744
900,000	427	.0459	61x7	1.2403
850,000	427	.0446	61x7	1.2042
800,000	427	.0433	61x7	1.1691
750,000	427	.042	61x7	1.134
700,000	427	.0405	61x7	1.0935
650,000	427	.0390	61x7	1.053
600,000	427	.0375	61x7	1.0125
550,000	427	.0359	61x7	.9693
500,000	259	.0449	37x7	.9429
450,000	259	.042	37x7	.882
400,000	259	.040	37x7	.840
350,000	259	.0378	37x7	.7938
300,000	259	.034	37x7	.714
250,000	259	.032	37x7	.672
Gauge (B. & S.)				
0000	133	.0399	19x7	.5985
000	133	.0356	19x7	.5340
00	133	.0317	19x7	.4755
0	133	.0284	19x7	.4260
1	133	.0251	19x7	.3765
2	49	.0369	7x7	.3321
3	49	.0327	7x7	.2943
4	49	.0290	7x7	.261
5	49	.0259	7x7	.2331
6	49	.0231	7x7	.2079
8	49	.0184	7x7	.1656

## STANDARD STRANDS FOR WEATHERPROOF CABLES

Size of Conductor C. M.	No. of Wires	Diam. of Individual Wire In Inches	O. D. of Strand In Inches
2,000,000	91	.1482	1.6302
1,750,000	91	.1386	1.5246
1,500,000	91	.1284	1.4124
1,250,000	91	.1172	1.2892
1,000,000	61	.1290	1.1520
950,000	61	.1248	1.1232
900,000	61	.1215	1.0935
850,000	61	.1181	1.0629
800,000	61	.1145	1.0305
750,000	61	.1109	.9981
700,000	61	.1071	.9639
650,000	61	.1032	.9288
600,000	61	.0992	.8928
550,000	61	.0950	.8550
500,000	37	.1162	.8134
450,000	37	.1103	.7721
400,000	37	.1040	.7280
350,000	37	.0973	.6811
300,000	19	.1257	.6285
250,000	19	.1147	.5735
Gauge (B. & S.)			
0000	19	.1055	.5275
000	19	.0940	.4700
00	7	.1378	.4134
0	7	.1228	.3684
1	7	.1093	.3279
2	7	.0973	.2919
3	7	.0867	.2601
4	7	.0772	.2316
5	7	.0687	.2061
6	7	.0612	.1836
8	7	.0485	.1455
10	7	.0385	.1155
12	7	.0306	.0915
14	7	.0243	.0726

## STANDARD CONCENTRIC STRANDS FOR PAPER, CAMBRIC AND RUBBER INSULATED CABLES

Size of Conductor C. M.	No. of Wires	Diam. of Individual Wire In Inches	O. D. of Strand In Inches
2,000,000	127	.1255	1.6315
1,750,000	127	.1174	1.5282
1,500,000	91	.1284	1.4124
1,250,000	91	.1172	1.2892
1,000,000	61	.1280	1.1520
950,000	61	.1248	1.1232
900,000	61	.1215	1.0935
850,000	61	.1181	1.0629
800,000	61	.1145	1.0305
750,000	61	.1109	.9981
700,000	61	.1071	.9639
650,000	61	.1032	.9288
600,000	61	.0992	.8928
550,000	61	.0950	.8550
500,000	37	.1162	.8134
450,000	37	.1103	.7721
400,000	37	.1040	.7280
350,000	37	.0973	.6811
300,000	37	.0901	.6307
250,000	37	.0822	.5754
Gauge (B. & S.)			
0000	19	.1055	.5275
000	19	.0940	.4700
00	19	.0836	.4180
0	19	.0746	.3730
1	10	.0663	.3315
2	7	.0973	.2919
3	7	.0867	.2601
4	7	.0772	.2316
5	7	.0687	.2061
6	7	.0612	.1836
8	7	.0485	.1455
10	7	.0385	.1155
12	7	.0305	.0915
14	7	.0242	.0726

## FLEXIBLE CONCENTRIC STRANDS FOR PAPER, CAMBRIC AND RUBBER INSULATED CABLES

Size of Conductor C. M.	No. of Wires	Diam. of Individual Wire In Inches	O. D. of Strand In Inches
2,000,000	169	.1088	1.6320
1,750,000	169	.1018	1.5270
1,500,000	127	.1087	1.4132
1,250,000	127	.0992	1.2896
1,000,000	91	.1048	1.1528
950,000	91	.1021	1.1231
900,000	91	.0994	1.0934
850,000	91	.0966	1.0626
800,000	91	.0937	1.0307
750,000	91	.0908	.9988
700,000	91	.0877	.9647
650,000	91	.0845	.9295
600,000	91	.0812	.8932
550,000	91	.0777	.8547
500,000	61	.0905	.8145
450,000	61	.0859	.7731
400,000	61	.0810	.7290
350,000	61	.0757	.6813
300,000	61	.0701	.6309
250,000	61	.0640	.5760
Gauge (B. & S.)			
0000	37	.0756	.5292
000	37	.0673	.4711
00	37	.0599	.4193
0	37	.0534	.3738
1	37	.0475	.3325
2	19	.0592	.2950
3	19	.0526	.2630
4	19	.0468	.2340
5	19	.0417	.2085
6	19	.0372	.1860
8	19	.0293	.1465
10	19	.0233	.1165
12	19	.0185	.0930
14	19	.0147	.0740





# HOW CONTRA

## INCREASES CONTROLLER SALES 50 PERCENT

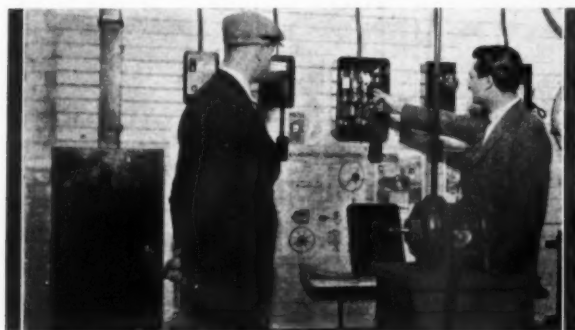


*Robert Koontz*

ONE of the primary activities of the Koontz-Wagner Electric Co., South Bend, Ind., is the sale and repair of electrical motors, and their installation. With the growing importance of the application of the correct motor control apparatus this concern decided to give greater attention to the sale and proper installation of such equipment. To sell such equipment successfully, it was found that the appeals of money saved on motor rewinding and greater efficiency to be had by the use of the right kind of control apparatus was of greatest interest to prospects.

To demonstrate efficiency and applications of the different types of equipment this company has profitably utilized part of a wall in its sales room by constructing a wooden board for a background and enameling it a white color. On this board were mounted the latest type of power panel, a local control magnetic switch, two remote control magnetic switches, one motor starting switch, a safety switch, a thermal cutout, a thermostatic switch and a lighting panel. All this motor control equipment is wired and connected to a motor mounted close by.

Whenever possible customers are brought into the shop to see for themselves the facilities for service employed by this company. At this time the display is utilized for actually demonstrating the performance of



*Control equipment is demonstrated to customers.*

the different types of switches and showing their applications. As a result this arrangement has contributed to a 50 percent increase in this company's sales of motor control equipment.



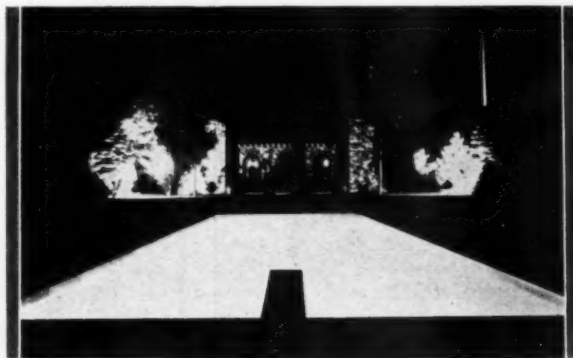
## ENLARGES JOB FROM \$1,100 TO \$6,000

ORIGINALLY one of the customers of R. T. Peterson, Whiffen Electric Co., White Plains, N. Y., who owns an estate proposed to him that flood-lights be installed for his shrubbery and a few overhead lights be strung up for night use of the pool. The job, as the owner outlined it, would have cost him about \$1,100.



*R. T. Peterson*

Peterson surveyed the grounds and decided that in addition to completely floodlighting the grounds, the pool should have underwater lighting. The owner had



*Night view of pool and part of grounds as lighted.*

never heard of underwater lighting and was surprised, not only to hear of this new development but of the price as well. A layout of the grounds was then made and with complete data it was presented to the owner.

Naturally the customer hesitated before spending this amount on decorative lighting but it was pointed out that this lighting increased the value of the estate and

*Electrical Contracting, April, 1931*

# FACTORS SELL



that having the most beautiful grounds in that section would also be a satisfaction. He became sold on the idea and ordered the work installed. With the added equipment the job ran over \$6,000.



## STUDY OF TENANTS SELLS ADEQUACY



L. A. Robinson

THE original contract obtained by L. A. Robinson, contractor, on the 1616 Walnut Building, Philadelphia, amounted to \$43,750. Seeing the opportunity to save the customer future trouble and at the same time materially increase the size of the job, Mr. Robinson discussed with the owner the advantage of adequate wiring. He had made a study of the probable types of tenants and pointed out the fact to the owner that unusual demands for current would be made by tenants in certain lines



The job increased from \$43,750 to \$105,000.

of business. As a result of this convincing presentation of facts, the owner had  $7\frac{1}{2}$  watts lighting capacity per sq. ft. installed instead of  $2\frac{1}{2}$  watts per sq. ft. as original planned. The completed job was thus increased to \$105,000. The building now houses a number of tapestry concerns that use a great many 300-watt lamps so increasing the capacity as to conform with Mr. Robinson's calculations.

Electrical Contracting, April, 1931

## DEMONSTRATES WITH SAMPLES

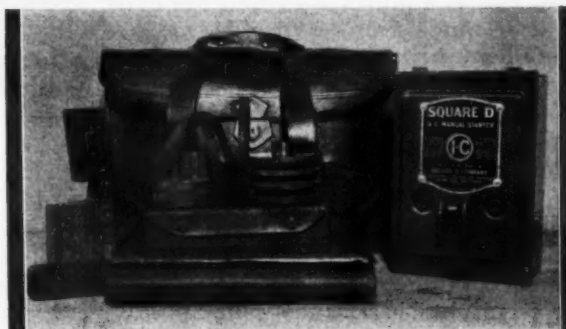
HAROLD DIETZ of Dietz Electric Shop, Elkhart, Ind., practices the idea that when you call on a prospect have something new to show him that will arouse interest and develop a discussion dwelling on his problems. Thus, you can find out where you can be of service to him in the suggestion of a change of the type equipment he is using or the installation of new equipment that will serve his needs better.



Harold Dietz

It is for that reason that he carries a sample kit shown in the accompanying illustration which includes worthwhile manufacturer's catalog information and samples of products that would arouse the prospect's interest. He has found that by carrying a sample of V-Belts and a grooved pulley, he was able to interest a number of his prospects to make a V-Belt installation. This has also been true with motor control apparatus. By carrying one sample and an illustrated catalog listing additional products of the same type he is in a position to get down to brass tacks in terms of the customer's needs and develop enough interest to get an order or to have one follow shortly.

Through this method of operation he has minimized competitive bidding. He recently flatly refused to bid against others on a competitive basis on a large industrial remodeling job and demonstrated why. As a result he was given the job without having to bid.



Sample kit carried for demonstration.

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# Electrical Contracting

*With which is incorporated The Electragist*

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S. B. WILLIAMS, Editor

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## Free Range Wiring

**T**HE suggestion has been made, and apparently has been received with some favor, that the utilities, in order to develop the electric range market, absorb the cost of wiring.

Although this policy of free wiring may develop a considerable amount of additional wiring business, electrical contractors look upon it with disfavor. In the first place, free wiring amounts to a cut in range prices because other retailers cannot compete on a similar basis. Secondly, when the utility absorbs the cost of wiring it makes sure, as a rule, that the price of that wiring is the very lowest it can secure. This not only encourages a poor grade of work, but it makes for a further breach in local industry relations. Thirdly, under such a policy the utility is in the position of making the price for the contractor's work, and the contractor can take it or leave it.

On the other hand, the electrical contractors are conscious of the fact that to sell a range separate and then advise the customer of an additional wiring charge may not help the sale of ranges. There is no reason to believe, however, that electric ranges cannot be sold at an installed price, and this is a policy to which the contractors will be much more favorable.

On an installed price sales policy other retailers can compete. It will be possible to establish a standard price for wiring based on costs which will return a fair profit to the contractor. The price would be one which would encourage better contractors to do this work.

Now then, the utilities might not find this so acceptable on the grounds that the total price might be a deterrent to greater sales. Since the utilities are interested in range sales only as a means to an end, namely,

more kilowatt hours, it might not be a bad plan for them to offer to all retailers a commission on every range sale. This is being done in Fresno, Cal., with considerable success. If the utilities are willing to give away wiring surely they could find no reason for not paying a commission on load.

If such a plan were suggested by contractors' associations to their local utilities it might be favorably considered—and if it were the result should be mutually beneficial.

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## Sports Lighting

**W**HETHER miniature golf was a passing fancy of 1930, or not, is immaterial. One thing is certain, and that is that miniature golf taught the American public that outdoor sports could be played and enjoyed at night.

This year major golf courses will be lighted, a number of such jobs being already projected. Night lighting has demonstrated its economic value to organized baseball. Other forms of paying amusements will spring up. In addition it seems likely that a new impetus will be given to backyard or lawn sports at night.

The market for outdoor sports lighting bids fair to be larger this year than it was last year, and it is offering to the alert electrical contractor an opportunity to develop considerable new business.

As its contribution to this activity ELECTRICAL CONTRACTING is devoting its May issue to Outdoor Sports Lighting. The latest and most approved methods will be shown, the errors of the past pointed out and cost data given.

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## Trade Practice Rules

**T**HE trade practice rules which are to operate in the electrical contracting industry have been adopted by an industry conference and are now in the hands of the Federal Trade Commission. It is expected that the Commission will require approximately three months in which to reach its decision regarding the proposed rules.

Is the industry prepared to make these rules effective, once the Commission approves them?

There are two kinds of rules: Those in Group I can and will, upon notification, be



made effective by the Commission. In other words, the Commission will act whenever it learns that anyone is breaking a Group I rule.

The Group II rules, on the other hand, can be policed only by the industry. If a contractor persists in breaking a Group II rule, how may he be punished lawfully?

It becomes apparent that the most powerful weapon is membership in the local association which carries with it certain benefits, prerogatives or opportunities that a non-member cannot enjoy. Then a member who backslides is faced with the possibility of losing that membership, while one on the outside stays there until he mends his ways.

If the preparation of these rules and the submission of them to the Federal Trade Commission for adoption is to be anything more than a gesture, then the local industry must find ways to make the Group II rules effective.

### The Latest Gold Brick

**S**ELLING gold bricks to farmers apparently is still profitable. In its latest disguise it is called farm wiring and is practised by traveling outfits, who are here today and gone tomorrow.

In one instance that has come to our attention, service was two No. 10's. The house was wired for 70 outlets on two circuits. A No. 8 conductor was brought out of the house to feed the barn and other outbuildings. Convenience outlets were provided for the general purpose motor and the motor for the ensilage cutter.

All of this work was done in the most shoddy manner and before the power company had built the line. The price for the job was over \$400.00.

We mention this incident because farm wiring offers to the contractor each year a handsome volume of business. Activities of unscrupulous wiring crews such as outlined will hurt the business of legitimate contractors.

It seems to us that it is the business of somebody to warn the farmers against such traveling crews and suggest that they have their wiring done only by recognized contractors. In a measure the power company has the most at stake because farmers once stung are less likely to have another job of wiring done right away.

### Did You Ever Have a Fire?

**D**ID the fire department ever put out a fire in your house or did the police ever prevent a robbery in your home? Then why do you pay taxes for these things if they never help you?

As a matter of fact, you would be in favor of these activities because, although you could not put your finger on any place where you personally had actually been helped, you nevertheless knew that the firemen's and police activities make your community a better place to live in than it would be if they did not exist.

Then, why ask what the Association of Electragists can do for you?

Its very existence makes your industry a better place to work in even if it does not do you personally one real turn.

How would you like to work in the industry if it had no National Electrical Code and therefore no standards of wiring? Wouldn't it be fine with every Tom, Dick and Harry doing any old kind of work at prices a third or less of those now quoted? How much wiring do you suppose the public would want under such conditions?

Yet the Association of Electragists is the only body that is trying to protect the contractors' interests in this connection.

There is still discrimination on the part of certain central stations, but think what that would be if there were not some national association of contractors making some check on this. The situations that the Electragists have been able to clean up in many cities are having their favorable effect upon utility policies elsewhere.

How would you like a situation where nobody stood up for the contractor or protected his interests? Nothing could be more disorganizing and that is what would happen if there were no Electragists.

And, all of this is being done on less than \$30,000 dues each year.

With twice the income the Association could do three times what it is now doing.

Do not ask what it can do for you personally. Ask yourself what would happen if there were no national association and see if you would like it.

If you are a real electrical contractor, if you want to work in an industry that will have a decreasing amount of trouble, if you are not a slacker but want to do your part towards improving conditions—

*Join the Electragists. If you don't know how, ask us to help you.*

# Code Chats

Conducted by F. N. M. SQUIRES

Assistant Chief Inspector, N. Y. Board of Fire Underwriters

*A Monthly Discussion of Wiring Practice and Questions of Interpretation, Presented with a View Toward Encouraging a Better Understanding of the National Electrical Code - - -*

## Hazardous Locations

A present code devotes over ten pages to rules covering installations in hazardous locations. It now lists three classes of these occupancies and will in the new add a fourth classification and because of this, will add about three extra pages.

Do we all know as much as we should about these matters? Are we paying enough attention to the hazards presented? Are we recognizing the conditions when we meet them?

It means that when a contractor lays out a job and when the inspector examines it, they must both ascertain the nature of the occupancy and must apply the appropriate rules.

Why must we wait for some catastrophe to happen to advise us that a serious hazard was involved because of the nature of the work carried on in the premises or because of the materials worked with or even stored there? We now all know that there may be under certain conditions, dangers to be given consideration in rooms where films are stored or in places where some kinds of paint spraying is carried on.

But are we always on the alert to recognize these conditions? Often it is difficult to see by a casual glance that a "Class 1" hazardous location is present. For instance, we may be in a furniture factory and it may appear to be just an ordinary factory layout but in one corner of a room there may be a paint spraying department which calls for the specific treatment of the electrical equipment as required by Rule 3203.

The whole subject is too extensive to be given full treatment in one issue of these columns but it is hoped that

the above remarks will result in a study of Article 32 of the Code.

## Switches on Three Wire Circuits

Many panel boards are constructed to be supplied with a three wire (110-220) volt feed, and provided with a solid neutral connecting bar and single pole switches. May three wire circuits be run from such panels or would this be in conflict with 1204 (a) which seems to require that the two ungrounded wires of the three wire circuit be disconnected by a double pole switch?

A three wire circuit is really a combination of two (2 wire) circuits using a common neutral. There are therefore two circuits and each may be controlled by its own single pole

switch for each switch will disconnect its ungrounded wire of the circuit which it controls. There is, then, no conflict with 1204 (a) and two single pole switches may be used.

## Lamp Receptacles Are Not Fuse Bases

Rule 1405 (g) reads in part, "Receptacles of the Edison base type shall be installed only for use as lamp holders." This was primarily intended to prohibit the installation of screw shell receptacles for use with attachment plugs and to keep the use of this type of receptacle limited to being a lamp holder. This rule can, however, be applied to combat an evil which, while thankfully not prevalent generally, especially in territories where inspectors are in force,



**WORKING FOR REINSPECTION AND REWIRING:** The Fond du Lac (Wis.) Electrical League is actively engaged in promoting more business for electrical contractors by working for reinspection of the business district which will result in about 50 percent rewiring. This group was also instrumental in drafting and adopting the city electrical code and is also active in Red Seal work. Members shown above are, standing (left to right): A. A. Kaufman, G. L. Rothe, John E. Wise, V. E. Anderson, R. E. Hanson, John Symons, A. F. Winter, F. H. Ebert, W. N. Matteson, E. Grant Smith, C. F. Krueger, L. G. Hammond, E. Zabel, E. A. Maze, J. Papke, F. A. Krentz, James E. Towne, and Roy N. Baum. Seated (left to right): Phil Merlin, James Merline, Paul Wilhelms, Louis Bowen, Oscar Huelsman, Ray Gafney, Peter Felda, T. W. Yelle, Walter Seekel, W. Lieflander, B. Krautsch and Hugo Gebhard.

*Electrical Contracting, April, 1931*

# What a Relief!

**Read what this chief electrician of an internationally known industrial said**



"Since I put those TRICO fuses on the furnace I have been relieved of the constant strain I was under of fearing that fuses might blow while running a heat. Before I used your fuses, the others would blow not less than twice a week. I have had your fuses on for four months and not once did they blow. I used to think your talk about fuses—time lag, etc.—was a lot of bunk and sales talk, but now I know there is a difference in fuses."

(Name on Request)

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TRUE and dependable TIME LAG is best obtained by surrounding the fusible strip with proper heat-absorbing powder. That is the way TRICO fuses are made. The cooling qualities of the powder, together with the heat-reducing copper-to-copper contacts, reduces watt loss, another important money-saving factor.

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is in some evidence in certain localities. This is the use of the screw type receptacle or sign receptacle for use as a plug fuse base.

These receptacles are, of course, of only 250 or 660 watt capacity and therefore are not designed to do the work of a cutout base. It has been reported that in some instances where such use has been made of them the results have been disastrous. Let us hope that any bad consequences resulting from this practice will be shouldered upon the installer and that this evil may be stamped out before it grows any further.

### Induction

Some contractors and some engineers seem to have the opinion that many of the Code rules are just pet ideas of the inspectors, without the backing of fact or reason. An example of this was just recently brought to light, and it proved quite interesting.

A certain building had originally been served with a single phase 110-220 volt system, and of course had 3-wire risers in conduit. A short time ago the service was changed over to a 3-phase 4-wire system. It was desired to use a certain 3-wire riser for a bank of special lamps, but it was desired to take advantage of the 3 wires to provide 3 circuits for these lamps, and to balance the lamps on the 3 phases. To do this, a 4th wire was necessary. The engineer asked our inspector for permission to run the 4th wire as a neutral in a separate conduit from the one containing the other 3 wires, as that conduit was already filled to capacity. The inspector refused, and the engineer considering that the inspector's talk about induction was some fairy tale, ran a separate wire in a separate conduit and used this extra wire as one of the phase wires, using the other wires in the original conduit as the other 2-phase wires and the neutral.

The next day this engineer's report to our inspector was that he had learned a whole lot about induction. Also he had learned that this Code rule was founded on very real conditions, and not just a fad of the inspection force.

Our inspector, of course, investigated to see what had happened, and found that both conduits had become quite hot when the load was on. Also,



**INSPECTOR WAS WIREMAN 21 YEARS AGO.** When the contractors in a city voluntarily tell you how good the inspector is, it must be true. Bill Williams, who carries out inspections under the city electrician in Chattanooga, Tenn., began as a wireman 21 years ago with Fred Cantrell. In 1913 he went with Terrell Electric Co., remaining there until February 28, 1929. Since then he has been electrical inspector.

he found that the load on the wires was far below the allowed carrying capacity of the conductors, so that there was no heat coming from that source.

It should be remembered also that had the engineer used the lone extra wire in the separate conduit as the neutral, the resultant heating would have been the same, for under the conditions given, viz., a load balanced on the 3 phases of a 3-phase 4-wire system, the neutral carries the same amount of current as the phase wires, when the load on one of the phases is removed.

### Fuses for Bell Transformers

When toy or bell ringing transformers of an approved make are connected to a lighting circuit having 15 ampere fuses is it necessary to install fuses between the primary of such transformers and the circuit wires?

The Code considers that the 15 ampere circuit fuse is sufficient as a minimum protective device and nowhere does the Code require a fuse of less than 15 amperes. In 612-A the carrying capacities of No. 18 and No. 16 wires are given as 3 and 6 amp., respectively, and 805-C and K specify that wires shall be protected in accordance with 612, but

805-M says that No. 16 or No. 18 wire "shall be considered as protected by 15 ampere fuses" and 808 says that small motors (2 HP. or less) shall be considered protected by the circuit conductor fuses (15 ampere).

We may, therefore, very properly assume that toy or bell ringing transformers are sufficiently protected by 15 ampere fuses. There is no benefit in providing a separate fuse for the transformer as in fact it is better protected if there is other load on the fuse also. The outlet for the transformer should be considered as one of the limit of 12 which may be placed on a circuit and the load should be figured as 25 watts as that is the maximum wattage allowed by the Laboratories with the secondary of the transformer shorted.

### Service Conduit in Building Wall

#### OFFICIAL INTERPRETATION 61

**QUESTION 1:** Is it permissible to lay service conduit in groove, flush with, and on inside surface of a brick wall of a building and plaster over?

**FINDING:** Yes.

**QUESTION 2:** Is it permissible to place service conduit in frame wall of building if space is filled with concrete?

**FINDING:** This question was touched upon in connection with our Interpretation No. 26, the finding of which reads as follows:

"No. The text of paragraph (a) of section 404 contemplates that the building wall is to be of a fire resistive type of construction rather than that the service conduit shall be encased in thermal insulating material, masonry, etc. It was never intended to provide for the use of service conduit within the hollow spaces of buildings of frame construction." Note in particular the final sentence in the above finding.

**QUESTION 3:** Does section 401, paragraph (b), have any direct bearing on section 404, paragraph (a), insofar as the thickness of covering of concrete or brick is concerned?

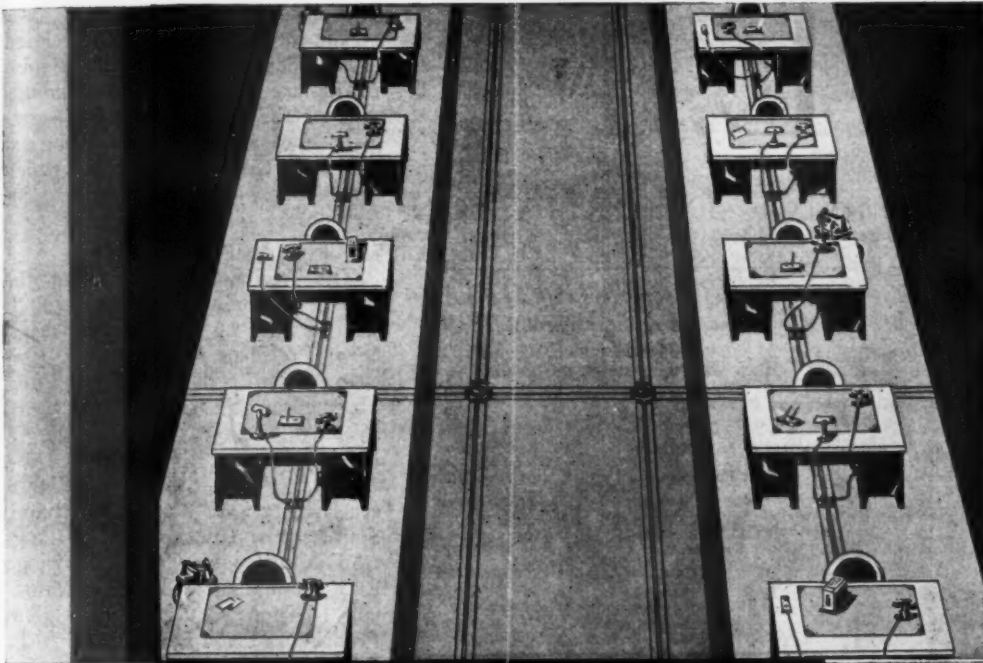
**FINDING:** Parties enforcing the National Electric Code are justified in assuming that because of the provisions of paragraph (b) of section 401, the enclosure of a service conduit by two inches of concrete properly applied will accomplish acceptable safeguarding against fire hazard to the premises.

### Trip Coils Used at Service

#### OFFICIAL INTERPRETATION 64

**QUESTION:** Is it required that a trip coil be placed in each ungrounded service conductor of an automatic overload circuit breaker, or may the number of trip coils be in accordance with paragraph (p) of section 805?

**FINDING:** There must be a trip coil in each ungrounded service conductor.



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WITH new tenants, very often requiring entirely new outlet locations—and with the constant expansion of existing outlet needs—a flexible system of wiring is essential in modern office buildings. An underfloor duct system meets every outlet need and provides maximum flexibility of wiring.

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# *Specify* UNDERFLOOR DUCT

# A. E. I.

## NEWS and SERVICE INFORMATION

*Material for this department is supplied by the headquarters staff of the Association of Electragists, International, 420 Lexington Avenue, New York, N. Y.*

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14 North Franklin Street, Chicago, Illinois

**Vice President, EARL N. PEAK**  
1803 West Main Street, Marshalltown, Iowa

### DIVISIONAL EXECUTIVE COMMITTEEMEN

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**Southeastern**  
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**Asst'to Gen'l Mgr.**  
ROBERT W. BARNES  
420 Lexington Ave.  
New York City

### Electragist Activities Extended at Conference

One hundred and fifty delegates, representing Electragist Chapters and affiliated electrical contractors' associations throughout the United States and Canada, gathered for three days series of conferences at the Hotel President in Kansas City, Mo., on March 16, 17 and 18.

The conferences opened on Monday, March 16, with the semi-annual meeting of the Executive Committee of the Association of Electragists, International. On Tuesday noon all of the conference delegates met at a luncheon, followed by a general meeting of the A. E. I. and a busi-

ness program of speakers arranged by the Greater Kansas City Chapter of Electragists.

Tuesday evening the conference delegates were the guests of the Greater Kansas City Electragists and other electrical men of Kansas City at a banquet and entertainment. Harry C. Evans, president of the Kansas City Chapter, was chairman of the arrangements committee, assisted by an able entertainment committee under the direction of R. B. Randall.

On Wednesday morning, the Trade Practice Conference of the Electrical Contracting Industry was held under the direction of the Fed-

eral Trade Commission.

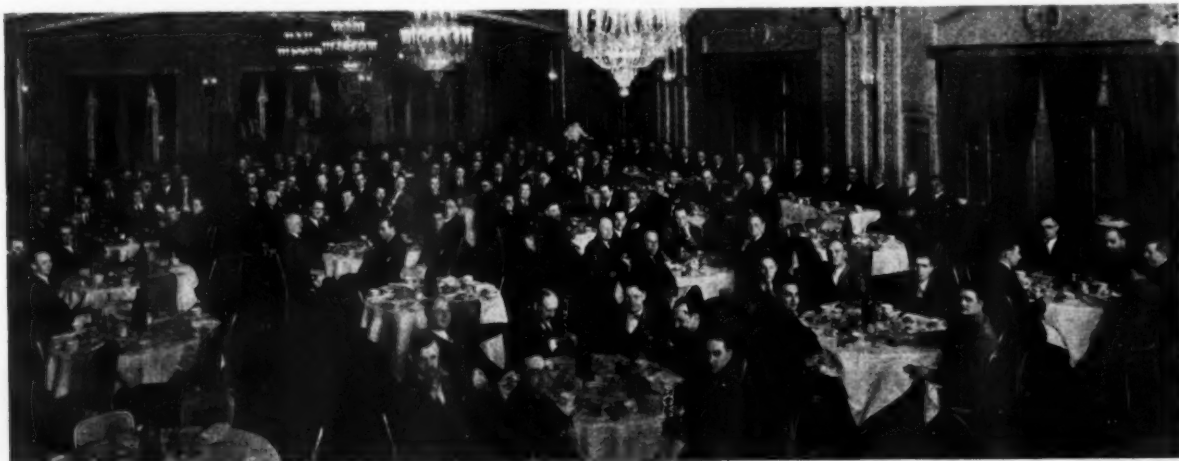
The three days of meetings closed Wednesday afternoon with a joint conference of the executive committees of the Association of Electragists, International, and the Electrical Guild of North America, at which organization problems of mutual interest were discussed.

### Executive Committee

The semi-annual meeting of the Executive Committee of the A. E. I. was attended by the following members: President L. E. Mayer, Chicago; Vice-President E. N. Peak, Marshalltown; Louis Kalischer, Brooklyn, Eastern Division; E. D. Brown, Detroit, Great Lakes Division; J. A. Fowler, Memphis, Southern Division; W. W. Ingalls, Miami, Southeastern Division; F. T. Langford, Minneapolis, Central Division; R. R. Reid, Salt Lake City, Mountain Division; C. L. Chamblin, San Francisco, Pacific Division; R. A. L. Gray, Toronto, Eastern Canadian Division; J. H. Schumacher, Winnipeg, Western Canadian Division; L. K. Comstock, New York, at-large; R. J. Nickles, Madison, alternate; L. W. Davis, secretary and general manager.

Reports from the various standing committees covered many of the important activities of the A. E. I. and plans were developed for extending the scope of these activities during the coming year.

The membership of the Association has increased its influence greatly during the past year through the growth of Electragist Chapters. Eighty-five Chapters are now operating, containing 65 percent of the



One hundred and fifty delegates attended the Kansas City Conferences.



# NEW TYPE DOSSERTS

## DOSSERT BOLT TYPE CABLE TAP

Characterized by great mechanical ruggedness and strength in clamping the main conductor. This device is in the form of a split Tee clamp, tightened by four strong bolts. The branch connection is held by a Dossert compression sleeve and nut. The tap is made without cutting the main conductor. Supplied in all sizes to take any size main conductor and any size branch connection.



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## DOSSERT PARALLEL OR GUTTER TAPS



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Very compact and space saving and easily handled and taped. Made in two forms: Type W which clamps both conductors by tightening three bolts, and Type X in which the branch connection is held by a split sleeve and jam nut with set screw.

### LIST PRICES

Size	Riser	Tap	Risers and Taps Same Size
0	.40	.20	.60
00	.49	.25	.74
000	.60	.30	.90
0000	.74	.36	1.10
250,000	.87	.43	1.30
300,000	1.01	.51	1.52
350,000	1.16	.58	1.74
400,000	1.34	.66	2.00
450,000	1.54	.76	2.30
500,000	1.74	.86	2.60
550,000	1.94	.96	2.90
600,000	2.12	1.06	3.18
650,000	2.29	1.15	3.44
700,000	2.45	1.23	3.68
750,000	2.61	1.31	3.92
800,000	2.77	1.39	4.16
850,000	2.94	1.46	4.40
900,000	3.09	1.55	4.64
1,000,000	3.34	1.66	5.00

For parallel taps where both riser and tap are the same size the prices shown in the last column will apply.

For parallel taps where riser and tap are different sizes take the full price of the larger size in the first column plus full price of the smaller size in the second column and add together for correct list price.

We do not supply these gutter taps for use in cases where the RISER is smaller than No. 0.

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A. E. I. membership, and this chapter movement will be rapidly pushed and made more effective in its influence on trade problems.

#### Wiring Standards

The Architects and Engineers Committee reported on the distribution of the Electragist Standards for Wiring Installations to 3,300 of the leading architects throughout the country, with the endorsement of the American Institute of Architects. These Electragist Standards include the definition of types of wiring which are suitable for use under various conditions, general requirements relating to safety and operating efficiency, and specifications for materials and apparatus and for methods of installing materials and apparatus. It is the purpose of the Electragist Standards to define what constitutes best practice in wiring.

With these Standards there was sent to each of the 3,300 architects the membership list of the A. E. I., providing them with a source of references for the selection of responsible, competent electrical contractors for their work.

#### To Define Adequacy

The Executive Committee voted to immediately set up a technical committee of electragists, with a technical secretary to handle the detail work, to proceed with the preparation of an unfinished section of the Electragist Standards covering "Engineering Design of Electrical Installations." This section will provide the definition of "adequacy" in wiring for all types of buildings

and occupancies. The work is to be pushed as rapidly as possible, and when completed will be distributed to all electragists, architects, engineers and inspectors, as the Electragist Standards of best practice for adequacy.

#### Data Book

It was voted by the Executive Committee to discontinue the loose-leaf Electragist Data Book, and to reprint the estimating tables and annual data covering wage rates, ordinances, etc., in pamphlet form and distribute these to all Electragist members.

#### Segregation of Bids

A report on the contacts of the A. E. I. with the Federal Government to obtain the segregation of the mechanical work from the general contract on government building, showed that the Department of the Treasury is not favorable to this, as they prefer to have responsibility for all work in one contract.

It was voted by the Executive Committee to ask the Federal Government to call for sub-bids on the mechanical work on all government projects directly from the mechanical trades, and to select the low bidders and give the names and amounts of their bids to the general contractor for inclusion in his general contract.

It was recommended that this method of calling for sub-bids be adopted on private contracts also.

The following resolution was adopted by the Committee:

"Whereas, The Association of Electragists, International, was a participating organization with the National Electric Light Association, National Retail Dry Goods Association, National Retail Hardware Dealers Association, National Retail Furniture Association, National Hardware Association of the United States, and National Association of Retail Druggists, in a Joint Merchandising Conference held during 1928-1929, and became a signatory to a Declaration of Merchandising Principles, signed by each member of that Conference; and

"Whereas, various parties at interest in that Conference have initiated a new Joint Merchandising Conference, and reopened the questions of merchandising policies involved in the original conference without the participation of the A. E. I.;

"Therefore, Be it Resolved, That, the general manager of the A. E. I. is instructed to write to each of the participants in the original Conference, advising them that the A. E. I. hereby withdraws its signature from the Declaration of Merchandising Principles, and send a copy of this resolution with his letter to each of the participants."

#### Amendments

Pursuant to a call of the President issued January 24, 1931, a special general meeting of the A. E. I. was convened on March 17, and unanimously approved several amendments to the constitution and by-laws of the Association. These amendments provide for the following governing powers:

1. Broader scope in the objects and purposes for which the Association was formed.

2. Establishing the status of local Electragist Chapters and their relationship to the A.E.I.

3. Defining the jurisdiction of local Chapters over all A.E.I. members who join the Chapters and over all applicants for membership in the territory of the Chapters.

#### Program of General Meeting

An interesting program of speakers, under the chairmanship of H. C. Evans, president of the Greater Kansas City Chapter of Electragists, was presented at the Tuesday afternoon and evening sessions. These sessions were attended by delegates from all parts of the country, with a large number from the nearby cities.

The list of speakers included L. E. Mayer, president of the A.E.I., W. J. Squire, Kansas City electragist, Louis Kalischer, chairman of the A.E.I. Motor Specialists Section, A. Penn Denton, engineer director of the Armored Cable and Flexible Metallic Conduit Section of N.E.M.A. and J. A. Fowler.



**CHATTANOOGA CHAPTER MEETS EACH WEEK:** The Chattanooga Chapter of Electragists meets every week on Thursday for luncheon. This picture shows six of the nine members, and it happens that the three officers are included. Left to right: W. H. Ashmore, president; V. Clark; L. A. Ragon, vice-president; Paul W. Curtis, secretary; Herbert Haile and W. A. Jewell.



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Attendants give more cheerful service, increase patronage and build up extra profits.

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All the big oil marketing companies are floodlighting their station buildings, and many have adopted the Duo-Service Floodlight in recent installations.

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Benjamin Duo-Service Floodlights have a porcelain enamel surface, inside and out, which is easily kept clean, will not tarnish or discolor, never needs repainting or refinishing and maintains its original lighting efficiency indefinitely.



## Profitable Installations in Super Service and Highway Stations Your Big Opportunity

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With two to five Benjamin Duo-Service Floodlights, depending on the size of the building and the ground area to be covered, you can give the owner a lighting effect that will

- 1—Attract attention from every direction, and
- 2—at the same time enable station attendants to give quicker and better service without any additional outside lighting.

A complete description of this fixture, with information on "how to plan the lighting layout," mounting, height of posts, etc., is shown in Bulletin AD2613, a copy of



which has been sent to every contractor in the country. If you haven't your copy of this interesting and informative bulletin handy, write for it today.

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New list prices and change in discounts give you the greatest possible advantage in selling Benjamin Duo-Service Floodlights to super service and highway stations and making a good profit on the installation.

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# Contracting News

*Information of Interest to Electrical Contractors consisting of items of news, short articles, practical ideas, etc., Our readers are invited to contribute to this department*

## Commission Gets Rules for Contracting Industry

The Trade Practice Conference of the electrical contracting industry, held at the Hotel President, March 18, adopted unanimously the proposed rules which had been worked up by a committee of the Association of Electragists, and presented them to the Federal Trade Commission for their acceptance.

The meeting which was held under the auspices of the commission with Judge George McCorkle, legal counselor for the commission, presiding, was attended by electrical contractors from almost every section of the country.

With the exception of two or three omissions and some changes of wording to strengthen them, the rules are virtually the same as those adopted by the Milwaukee Convention of Electragists last August and given in detail in the September issue of ELECTRICAL CONTRACTING. Since that time the Electragist committee, headed by L. K. Comstock, has had many conferences with members of the commission's legal staff to improve the rules.

These rules are divided into two groups. Group I rules, seven in number, relate to unfair trade practices which the Commission can investigate and stop wherever found to be practiced.

Group II rules refer to practices

which the Commission may recognize as economically sound but which it cannot enforce.

The Conference created a Committee on Trade Practices empowered "to make complaints concerning alleged violations, to cooperate with the Federal Trade Commission, and generally to perform such other acts as may be reasonably necessary and proper to put the resolutions into effect and accomplish the objects

and purposes of the conference." The following four members of this Committee were appointed, these four to select the fifth member: L. K. Comstock, New York; L. E. Mayer, Chicago; E. D. Brown, Detroit; and J. A. Fowler, Memphis.

The resolutions adopted by the Conference were taken to Washington by Judge McCorkle, and announcement by the Federal Trade Commission as to their approval or rejection will follow consideration of the rules by the full Commission.

## Decision Defines Contractor-Labor Association Relations

The Electrical Business Association, an organization of Cleveland Electrical Contractors, and Local 38, International Brotherhood of Electrical Workers, were exonerated in Common Pleas Court at Cleveland, Ohio, Feb. 11, of having engaged in a conspiracy to fix wiring prices and stifle competition.

The decision by Judge John P. Dempsey was the outcome of a civil suit, brought by the state, seeking an injunction to halt the alleged conspiracy.

While clearing the two associations, however, Judge Dempsey ordered permanent injunctions issued against nine of the thirty individual defendants in the civil suit. Of these nine defendants four were state's witnesses.

(Continued on page 83)



**CHAPTER PRESIDENT ON ELECTRICAL EXAMINING BOARD:** M. E. Hart, president of the New Orleans Chapter of Electragists, has been appointed to the Electrical Examining Board, which passes on the application of New Orleans contractors for licenses. This chapter holds regular meetings and have been successful in bettering conditions for electrical contractors. Shown above, seated (left to right) are Henry Gsell, Vic Campbell, Eugene Freeman, E. J. Fisher, Col. Robley S. Stearnes and Oscar Z. Levy. Standing (left to right) Rudolph J. Vigner, Jr., M. E. Hart, president; James M. Maloney, W. J. Barnes, I. G. Marks, D. L. Craton, Julian G. Wenn, J. M. Nunez and George Sterken.

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## ...the NEW Sturtevant

# Propeller Fan



Scores of contractors interviewed before we designed it

When we set out to design the new Sturtevant Propeller Fan, we determined that no effort or expense would be spared to make it as nearly as possible the ideal from the contractor's standpoint. We therefore not only drew upon our own experience of many years but went a step further.

Over a period of several months Sturtevant investigators interviewed scores of contractors and asked for *their* specifications for an ideal fan... a fan that would make their selling and installing job easier and more profitable. These contractors cooperated with enthusiasm and offered many constructive suggestions.

That all this painstaking effort was worth while is evident in a moment's inspection of the new Sturtevant. Truly it is an outstanding improvement in propeller fans... far ahead in appearance... exceptionally light and easy to install... highly efficient and quiet running.

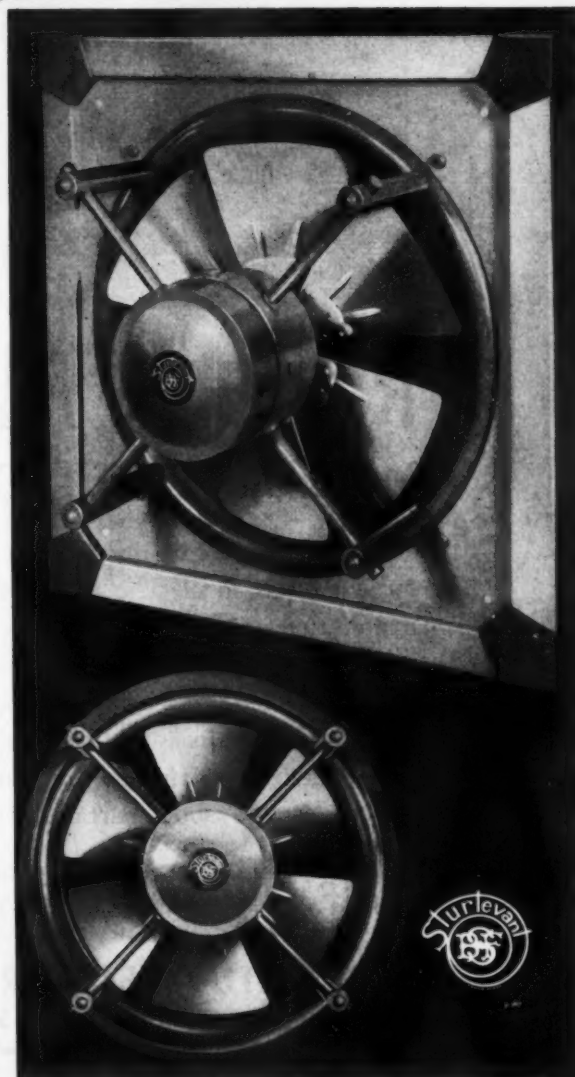
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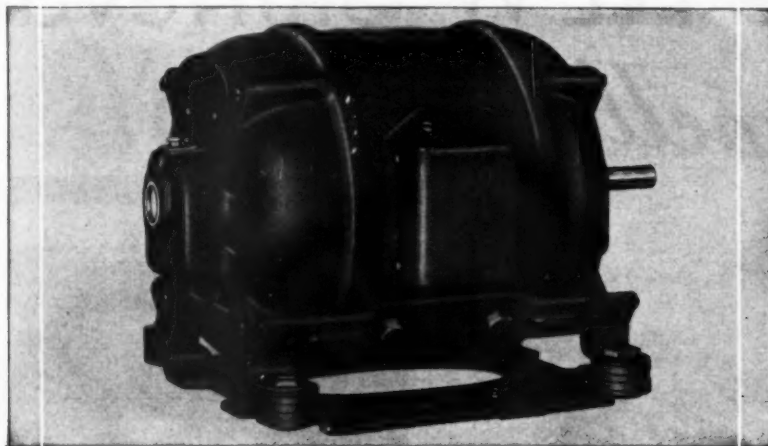
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THEY KEEP A-RUNNING



*1/6 Horse Power Century Type RS Repulsion Start Induction Single Phase Motor*

## RUBBER MOUNTED FOR QUIET OPERATION

Where noise and vibration must be kept at a minimum and localized—as in electric refrigerators, oil burners and similar installations—the combined advantages of both spring and rubber mounting provided by these motors makes them particularly suitable . . . The quiet operation of Century Type RS Motors is further assured because they are of the brush-lifting type—the brushes ride the commutator only during the starting period; about 1/900th part of the time the motor is in operation.

Century Repulsion Start Induction Single Phase Motors are built in all standard sizes from 1/8 to 40 horse power.

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*40 U. S. and Canadian Stock Points and More Than 75 Outside Thereof*

SINGLE PHASE  
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CURRENT MOTORS

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**MOTORS**

MOTOR GENERA-  
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FOR MORE THAN 27 YEARS AT ST. LOUIS



# Suggested RESALE PRICES *for* Wiring Supplies

The prices listed on the following pages are merely suggested resale prices for the commonly used standard supplies and equipment employed in electrical construction work. They are based on average current trade costs throughout the country, very largely obtained from jobbers' price sheets, and are also based on average overhead charges.

• • •

Obviously, prices can be suggested only for the widely used products that are nationally distributed, and under no circumstances is this section intended to function as a directory of products or manufacturers.

• • •

The publishers wish to again emphasize that these are merely *suggested* resale prices and while every effort is made to make them universally applicable and accurate we cannot guarantee them or assume any responsibility for errors.

• • •

The prices appearing in this section will be completely revised each month as trade prices may change.

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# Suggested Resale Prices for Wiring Supplies

These are merely suggested resale prices for the commonly used products that appear regularly on jobber price lists. They are figured on generally accepted principles for computing resale prices and should cover average conditions but are not guaranteed. (See note on title page.)

## A-SUNDRIES

### ASBESTOS

Asbestos Millboard—Per Pound—36c.

### ANNUNCIATORS House-Surface Type

No. Drops	Wood	Ansonia Metal	Edwards No. 81 or Faraday No. 373	Edw. & Dixie White Enamel	P. & W. Compe-tion	Automa-tic
2	\$ 8.25	\$11.00	\$ 9.85	\$13.00		
3	9.35	12.45	11.60	14.80		
4	10.90	13.60	13.05	15.40	\$13.20	\$16.50
5	12.65	14.85				
6	13.60	16.10	16.40	19.40	16.50	19.80
8	16.10	18.90	19.40	22.75	19.80	24.75
10	19.00	21.60	22.75	26.00	23.10	29.70
12	21.50	24.25	25.90	29.15	26.40	
15	27.00	30.25				
16			34.60	40.00	34.65	
20	35.90	40.85			42.90	
Extra Drops			2.25	3.00		

(All other Annunciators—Sell at List less 10%)

### COUCH Electrical Reset

Number of Drops	Style D Face Type Wood Face	Style F Flush Wood Face	Style F Flush Metal Face
4	DA 4 \$21.50	FA 4 \$44.80	FA 4 \$49.80
6	DA 6 26.50	FA 6 40.30	FA 6 55.00
8	DA 8 31.50	FA 8 53.80	FA 8 59.70
10	DA 10 36.50	FA 10 58.25	FA 10 64.70
12	DA 12 43.10	FA 12 64.25	FA 12 71.30
15	DA 15 50.00	FA 15 73.10	FA 15 81.50
16	DA 16 56.50		
20	DA 20 69.75	FA 20 88.15	FA 20 95.00

Add for each drop on any of above—\$4.15 per drop

### ADAPTORS & REDUCERS

#### For Sockets and Vases

	Arrow	Benj. Bryant	G. E.	Hubbl.	Price
Mogul to Medium	292	98	421	070	\$6.50
Medium to Candelabra	392		392	35690	.25
Candelabra to Miniature	391		391		.20
Medium to Intermediate	492		9691	2644	.25
Parallel Blades to Medium		1006	KF	682	.30
Plug in Pull Socket	35024		35024		1.90
Vase Adaptors, Benjamin No. S, 831, 832, 833—Each					2.00

### EXTENSION ARMS FOR PULL SOCKETS

For Brass or Porcelain Sockets with 8"-10"-12" or 14" Reflec.	\$0.55
16"-18" or 20"	.65

### ATTACHMENTS FOR PULL SOCKETS

For 8" to 14" Reflectors No. 5828—5829—5957—5958	\$ .55
For 16" to 20" Reflectors No. 5953—5954—5959—5960	.65

### ADJUSTERS

#### For Cords

Universal Cord Adjuster Standard Size No. 1417 3/4" Long	Price \$ .10
" " " Factory No. 1418 5/4" Long	.15
" " " Reinforced No. 1419 5/4" Long	.20
Ball Type No. 1403 & 5 for Type C Cord. 1/4 hole	.10
" " " No. 4634 & 5 for Reinforced Cord. 3/4 hole	.12

### ACORNS & TASSELS

Luminous Acorns and Pendants for Pull Chain	\$0.30
Brass Acorns and Tassels for Pull Chain	.10
Brass Acorns Adjustable for Linen Cord	.10
Insulating Link for Pull Chain	.15

## BOXES, SWITCH

### SECTIONAL SWITCH BOXES

Single Gang—For Switch and Recep. for Old or New Work

	Depth	Without clamps	Black	Price
For Loom	2, 2 1/4 or 2 3/4"			Galvd.
For BX Cable	2 3/4" 2 3/4"	With	.18	.20
		With	.32	.35
For Rigid Conduit	1 1/4 to 2 3/4"	Without	.19	.21
		With	.32	.35
Spacers—For Spacers only deduct from any of above prices			.04	.05
Kruse Sw. Box Supports—G. E. No. 6610—16 1/2" Long				.30

With BRACKETS or EXTENDED EARS or LATH SUPPORTS For New Work

	Depth	Without clamps	Black	Price
For Loom	2, 2 1/4 or 2 3/4"			Galvd.
For BX Cable or Loom	2, 2 1/4 2 3/4"	With	.25	.28
" Rigid Conduit	2 to 2 3/4"	Without	.31	.34
			.26	.29

### SOLID GANG BOXES—GALVANIZED

	2 Gang	3 Gang	4 Gang	5 Gang	6 Gang	7 Gang	8 Gang
Covers Extra							
Price of Box	\$ .85	\$1.20	\$1.60	\$2.15	\$4.15	\$6.25	\$6.65
Price of Cover	.40	.60	.80	1.00	1.95	3.45	3.85

### TANDEM SWITCH BOXES

	Black	Galvanized
Loom, BX or Conduit		
2 Gang	\$ .85	\$1.10
3 Gang	\$1.10	\$1.65
4 Gang	\$1.25	\$1.95
5 Gang	\$1.40	\$2.15
6 Gang	\$1.60	\$2.45
7 Gang	\$1.80	\$2.75
8 Gang	\$2.00	\$3.05

### DOOR SWITCH BOXES

	Black	Galvd.
For Rigid or Flexible Conduit without Clamps	\$ .50	\$ .55
with Clamps	.60	.65

### LAUNDRY BOXES

	Black	Galvd.
Gem-Appleton or Raco, etc., with Single Receptacle	\$1.10	\$1.25
Duplex	1.25	1.85

For Concrete Boxes See Page PL-5.  
For Solid Gang Boxes See Page PL-5.

## BOXES & COVERS, OUTLET

### CEILING BOXES, ROUND

Universal Nos.	Size and Description	Depth	Knockouts Bottom Side	Price Black Galvd.
36115	3 1/2" With Lugs	1 1/4"	3-1/2" & 4" Loom	\$0.10 \$0.12
36116	3 1/2" No	1 1/4"	3-1/2" & 4"	.08 .10
36125	3 1/2" With	1 1/4"	3-1/2" & 4"	.14 .16
36126	3 1/2" No	1 1/4"	3-1/2" & 4"	.12 .14
36716	3 1/2" Flat Plate with Clamps	1 1/4"	3-1/2" & 4"	.09 .11
56111	4" With Ears	1 1/4"	5-1/2" or 3/4" K.O.	.11 .13
56112	4" No	1 1/4"	5-1/2" or 3/4" K.O.	.07 .10
56115	4" With Ears-Loom & Cond.	1 1/4"	3-1/2" & 6" Loom	.12 .15
56116	4" No	1 1/4"	3-1/2" & 6"	.09 .11
56121	4" With Ears	1 1/4"	5-1/2" or 3/4" K.O.	.14 .17
56122	4" No Ears	1 1/4"	5-1/2" or 3/4" K.O.	.11 .13
56125	4" Ears-Loom & Conduit	1 1/4"	3-1/2" & 6" Loom	.17 .20
56126	4" No Ears	1 1/4"	3-1/2" & 6"	.16 .18
56712	4" Flat Plate	1 1/4"	5-1/2" or 3/4" K.O.	.07 .09

### OUTLET BOXES, OCTAGON

Universal Nos.	Size and Description	Depth	Knockouts Bottom Side	Price Black Galvd.
24151	3 1/4" Oct.-Conduit Box	1 1/4"	1-1/4" 4-1/4"	\$0.11 \$0.13
24151	3 1/4" " " "	1 1/4"	1-1/4" 4-1/4"	.13 .16
24151FS	3 1/4" " " With Stud	1 1/4"	1-1/4" 4-1/4"	.22 .24
24151	4" Oct.-Conduit Box	1 1/4"	1-1/4" 4-1/4"	.15 .18
24151	4" " " " "	1 1/4"	1-1/4" 4-1/4"	.17 .19
24151FS	4" " " With Stud	1 1/4"	1-1/4" 4-1/4"	.17 .19
24155	4" -Cond. & Loom B.	1 1/4"	9-1/4" 12-1/4"	.21 .25
54171	4" -Conduit Box	2 1/4"	1 1/4" 1 1/4"	.27 .31

COVERS  
For 3 1/4"-3 1/2"-4" Octagon or Round Boxes

				Black	Galvd.
24C-1	3 1/4"	Blank Cover Flat		\$0.05	\$0.08
24C-2	3 1/4"	Raised		.06	.09
24C-3	3 1/4"	Flat with 1/2" K. O. in Center		.06	.09
24C-4	3 1/4"	Raised with 1/2" K. O.		.07	.10
24C-5	3 1/4"	Spider for Switch or Receptacle		.07	.10
24C-6	3 1/4"	Raised Federal Sign		.08	.10
24C-7	3 1/4"	Flat 1 1/2" hole for other		.20	.20
24C-8	3 1/4"	Raised 1 1/2" hole for other		.07	.09
24C-9	3 1/4"	Flat for fluted devices		.19	.21
24C-10	3 1/4"	Blank Cover Flat		.06	.09
24C-11	4"	Raised		.07	.10
24C-12	4"	Open 1/2" Deep		.10	.10
24C-13	4"	Flat with 1/2" K. O. in Center		.07	.10
24C-14	4"	Raised with 1/2" K. O.		.09	.11
24C-15	4"	Spider for Switch or Receptacle		.08	.10
24C-16	4"	Raised Federal Sign		.08	.11
24C-17	4"	Flat 1 1/2" Hole for Std.		.11	.13
24C-18	4"	Raised 1 1/2" Hole for Std.		.08	.11
24C-19	4"	Flat for Fluted Devices		.22	.24
24C-20	4"	Raised 1 1/2" High Open		.08	.11

## OUTLET BOXES—Square 4" &amp; 4 1/16"

Uni- versal No.	Size and Description	Depth	Knockouts Bottom Side	Black	Price Galvd.
51151	4" Sq. Comb. Gas & Elect.	1 1/2"	5-1/2" 8-1/2"	\$0.18	\$0.21
51151	4" Conduit Box	1 1/2"	5-1/2" 8-1/2"	.20	.23
52151	4" " "	1 1/2"	5-1/2" 10-1/2"	.17	.20
52151	4" " "	1 1/2"	5-1/2" 10-1/2"	.19	.23
52171	4" " "	2 1/2"	5-1/2" 10-1/2"	.60	.60
72151	4 1/16" " "	1 1/2"	5-1/2" or 5-1/2" 10-1/2"	.45	.45
72171	4 1/16" " "	2 1/2"	5-1/2" or 5-1/2" 10-1/2"	.53	.53

## COVERS For 4" &amp; 4 1/16" Square Boxes

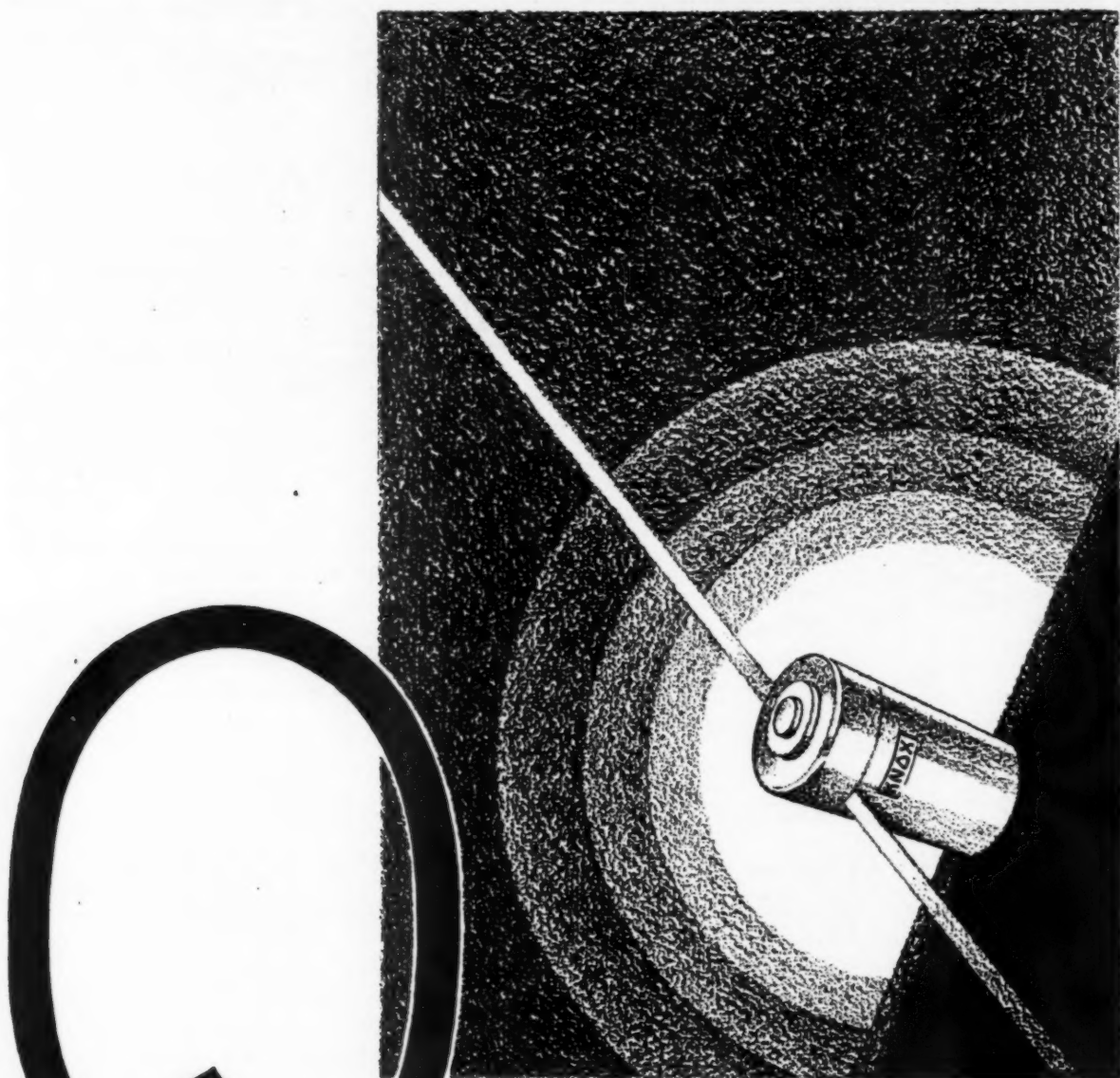
52C-1	4" Sq. Blank Flat			\$0.08	\$0.11
52C-2	4" Raised			.11	.14
52C-3	4" Raised 1/2" High Open			.14	.17
52C-4	4" Flat with 1/2" K. O. in Center			.11	.13
52C-5	4" Raised			.16	.19
52C-6	4" Spider for Rect. Switch or Recept.			.13	.15
52C-7	4" " "			.12	.14
52C-8	4" " "			.18	.20
52C-9	4" " "			.19	.22
52C-10	4" " "			.18	.21
52C-11	4" " "			.23	.25
52C-12	4" " "			.25	.27
52C-13	4" Flat Spider for Snap Switches			.18	.20
52C-14	4" Raised for Sign Rec.			.10	.11
52C-15	4" " "			.16	.18
52C-16	4" " "			.29	.32
52C-17	4" " "			.12	.14
52C-18	4" " "			.36	.39
52C-19	4" " "			.11	.13
72C-1	4 1/16" Sq. Blank Flat			.29	.32
72C-2	4 1/16" Raised			.33	.36
72C-3	4 1/16" Raised Open			.36	.39
72C-4	4 1/16" With 1/2" K. O. in Center			.36	.39
72C-5	4 1/16" " "			.36	.39
72C-6	4 1/16" " "			.36	.39
72C-7	4 1/16" " "			.36	.39
72C-8	4 1/16" " "			.36	.39
72C-9	4 1/16" " "			.36	.39
72C-10	4 1/16" " "			.36	.39
72C-11	4 1/16" " "			.36	.39
72C-12	4 1/16" " "			.36	.39
72C-13	4 1/16" " "			.36	.39
72C-14	4 1/16" " "			.36	.39
72C-15	4 1/16" " "			.36	.39
72C-16	4 1/16" " "			.36	.39
72C-17	4 1/16" " "			.36	.39
72C-18	4 1/16" " "			.36	.39
72C-19	4 1/16" " "			.36	.39
72C-20	4 1/16" " "			.36	.39
72C-21	4 1/16" " "			.36	.39
72C-22	4 1/16" " "			.36	.39
72C-23	4 1/16" " "			.36	.39
72C-24	4 1/16" " "			.36	.39
72C-25	4 1/16" " "			.36	.39
72C-26	4 1/16" " "			.36	.39
72C-27	4 1/16" " "			.36	.39
72C-28	4 1/16" " "			.36	.39
72C-29	4 1/16" " "			.36	.39
72C-30	4 1/16" " "			.36	.39
72C-31	4 1/16" " "			.36	.39
72C-32	4 1/16" " "			.36	.39
72C-33	4 1/16" " "			.36	.39
72C-34	4 1/16" " "			.36	.39
72C-35	4 1/16" " "			.36	.39
72C-36	4 1/16" " "			.36	.39
72C-37	4 1/16" " "			.36	.39
72C-38	4 1/16" " "			.36	.39
72C-39	4 1/16" " "			.36	.39
72C-40	4 1/16" " "			.36	.39
72C-41	4 1/16" " "			.36	.39
72C-42	4 1/16" " "			.36	.39
72C-43	4 1/16" " "			.36	.39
72C-44	4 1/16" " "			.36	.39
72C-45	4 1/16" " "			.36	.39
72C-46	4 1/16" " "			.36	.39
72C-47	4 1/16" " "			.36	.39
72C-48	4 1/16" " "			.36	.39
72C-49	4 1/16" " "			.36	.39
72C-50	4 1/16" " "			.36	.39
72C-51	4 1/16" " "			.36	.39
72C-52	4 1/16" " "			.36	.39
72C-53	4 1/16" " "			.36	.39
72C-54	4 1/16" " "			.36	.39
72C-55	4 1/16" " "			.36	.39
72C-56	4 1/16" " "			.36	.39
72C-57	4 1/16" " "			.36	.39
72C-58	4 1/16" " "			.36	.39
72C-59	4 1/16" " "			.36	.39
72C-60	4 1/16" " "			.36	.39
72C-61	4 1/16" " "			.36	.39
72C-62	4 1/16" " "			.36	.39
72C-63	4 1/16" " "			.36	.39
72C-64	4 1/16" " "			.36	.39
72C-65	4 1/16" " "			.36	.39
72C-66	4 1/16" " "			.36	.39
72C-67	4 1/16" " "			.36	.39
72C-68	4 1/16" " "			.36	.39
72C-69	4 1/16" " "			.36	.39
72C-70	4 1/16" " "			.36	.39
72C-71	4 1/16" " "			.36	.39
72C-72	4 1/16" " "			.36	.39
72C-73	4 1/16" " "			.36	.39
72C-74	4 1/16" " "			.36	.39
72C-75	4 1/16" " "			.36	.39
72C-76	4 1/16" " "			.36	.39
72C-77	4 1/16" " "			.36	.39
72C-78	4 1/16" " "			.36	.39
72C-79	4 1/16" " "			.36	.39
72C-80	4 1/16" " "			.36	.39
72C-81	4 1/16" " "			.36	.39
72C-82	4 1/16" " "			.36	.39
72C-83	4 1/16" " "			.36	.39
72C-84	4 1/16" " "			.36	.39
72C-85	4 1/16" " "			.36	.39
72C-86	4 1/16" " "			.36	.39
72C-87	4 1/16" " "			.36	.39
72C-88	4 1/16" " "			.36	.39
72C-89	4 1/16" " "			.36	.39
72C-90	4 1/16" " "			.36	.39
72C-91	4 1/16" " "			.36	.39
72C-92	4 1/16" " "			.36	.39
72C-93	4 1/16" " "			.36	.39
72C-94	4 1/16" " "			.36	.39
72C-95	4 1/16" " "			.36	.39
72C-96	4 1/16" " "			.36	.39
72C-97	4 1/16" " "			.36	.39
72C-98	4 1/16" " "			.36	.39
72C-99	4 1/16" " "			.36	.39
72C-100	4 1/16" " "			.36	.39

## EXTENSION RINGS For Octagon &amp; Square Boxes

25151	3 1/4" Octagon Ring—1 1/2" Deep	\$0.24	\$0.26
53151	4" " " or Square Ring 1 1/2" Deep	.26	.29
73151	4 1/16" Square Ring 1 1/2" Deep	.65	.65
55171	4" Octagon Ring 2 1/2" Deep	.45	.50
53171	4" Square " 2 1/2" Deep	.75	.75
73171	4 1/16" Square " 2 1/2" Deep	.70	.70

HANDY OR UTILITY BOXES & COVERS  
For Use With Rigid Conduit

Description	Universal Numbers	Price
Box 3 1/4"x1 1/4"x1 1/4" For Rigid Cond.	58151	\$0.22
Box 4 1/2"x2 1/4"x1 1/4" For Rigid Cond.	58361	.22
Box 4 1/2"x2 1/4"x1 1/4" For Rigid Cond.		.22
Box 4 1/2"x2 1/4"x2 1/4" For Rigid Cond.	58371	.22
Box 4 1/2"x2 1/4"x2 1/4" For Rigid Cond.		.60
Cover Flat Steel Closed	58C1	.10
Cover Porcelain with Holes	58C2	.13
Cover for Sgle. Receptacle	58C5	.18
Cover for Duplex Receptacle	58C7	.18
Cover for Toggle Flush Switch	58C30	.18
Cover for Sgle. Push Switch	58C3	.18
Cover for Sign Receptacle	58C33	.18
Cover for Sngl. Switches	58C1	.18
Cover with 1/2" O.	58C6	.21
Cover with 1/2" or 3/4" Nipple		.21
Cover with Bushing for Cord	58C11	.18



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1831



1931

## AMERICAN STEEL & WIRE COMPANY

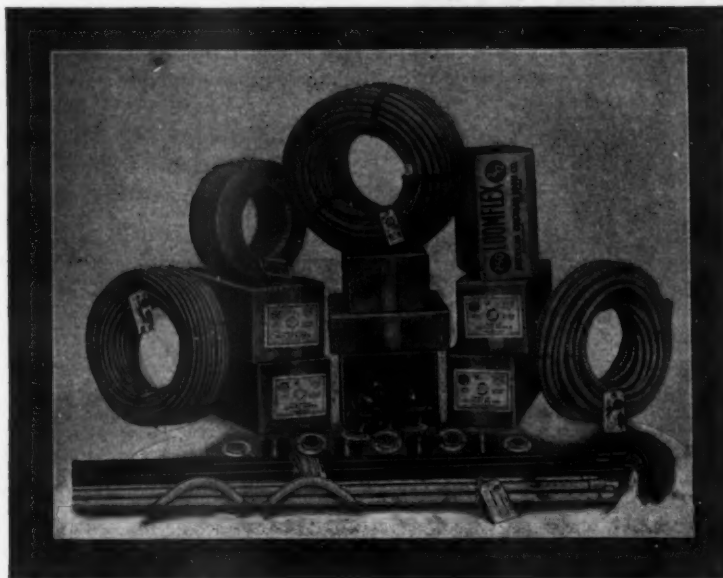
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IN doing an "adequate wiring" job (more circuits—and heavier circuits in some places such as kitchens, dining rooms, laundries) the use of materials that lend themselves to a saving in labor and a speedier completion of the work, assure a profit. Every contractor who has used A.C.L. "Better Wiring Materials" has satisfied himself that they are profit producers—they go into a job without grief, and stay there.

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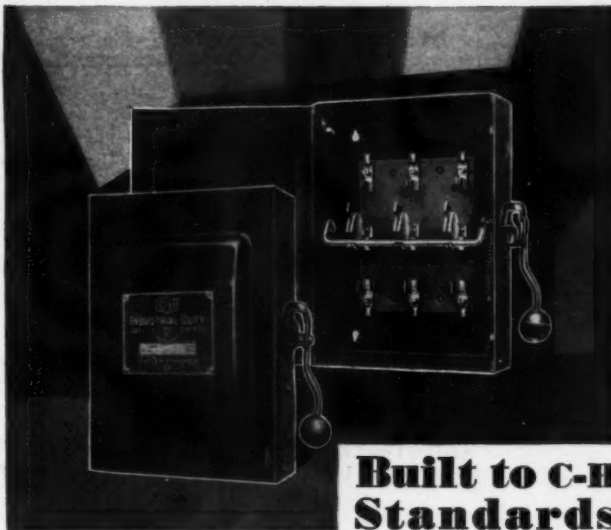
# BUSINESS ~ ~ ~

## getting It and keeping It

**T**O get business, offer more than the buyer expects. An *unexpected* service is *longer* remembered than a lower price.

The prospective buyer may not fully realize his own needs. You can serve him best by advising him. He may think any Safety Switch rated high enough to disconnect the line on average loads is switch enough to buy. But true safety cannot be measured in ratings. Some applications demand more safety built into the switch than others.

He may be content with just a wiring job . . . instead of a truly complete one. He will thank you for suggestions . . .



The C-H Bul. 4111 Industrial Duty Switch is typical of C-H quality throughout the line. Cover interlock, insulated ball handle, quick make and quick break . . . just a few of the features which make this an ideal switch for heavy duty. Type "A" design and construction. Capacities up to 600, 250 volts A. C. or D. C. and up to 575 volts A. C.

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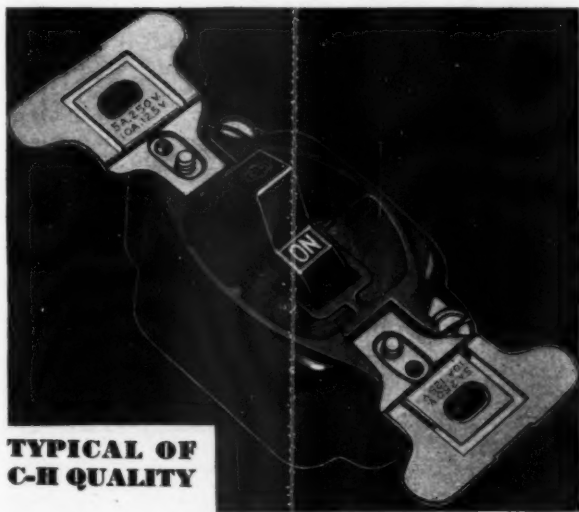
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The C-H 7281 Toggle Switch is enclosed in a dust-proof case of molded Thermoplas. Entire mechanism mounted on two resilient rubber cushions for silent operation.

# CUTLER HAMMER

*Wiring Devices and Safety Switches for Every Service*

(A-3985)



# PL-6

## Boxes, Floor

THREADED COMPOSITION BUSHINGS									
Size	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	
Without Locknut.....	\$ .05	\$ .11	\$ .12	\$ .14	\$ .16	\$ .20	\$ .45	\$ .80	
With Locknut.....	.08	.14	.15	.18	.25	.45	.70	1.10	
Socket Bushings									
Black Composition.....	3/8"	1/2"	3/4"	1"					
For Sockets.....	\$ .02	\$ .02	\$ .04	\$ .08					

## BOXES, FLOOR

NON-ADJUSTABLE TYPE									
"Full- man" robe" Steel Fullman City Mfg. Co. Co.	Russell & Stoll	Description	Price						
477	110	2580	Comp. Out. with Std. Rec. & Bell Nozzle	\$4.00					
490	100	2590	Less Std. Rec. with Stem Nozzle	3.50					
490	100	2590	Comp. Out. Less Std. Rec. less Nozzle	2.40					
491	.....	.....	Comp. Out. with 20A. Polars. Rec. & Plug Noz.	4.90					
499	300	.....	Midget Out. with 10A. Recept. No Nozzle	3.25					
498	.....	.....	Square Out. Less Recept. with Bell Nozzle	4.30					
496	.....	.....	Square Out. With 15 Amp. Rec. & Bell Nozzle	5.40					
497	.....	.....	Sq. Out. With 25 A. Rec. & Large Bell Nozzle	8.60					

ADJUSTABLE TYPE									
400	120	2502	Complete-Shallow Box—Less Receptacle	\$4.30					
400	.....	.....	Complete-Deep Box—Less Receptacle	5.25					
401	130	.....	Complete-Shallow Box With Receptacle	5.35					
401	.....	.....	Complete-Deep Box With Receptacle	6.30					
420	.....	.....	Complete Large Size Box Without Receptacle	4.90					
421	.....	.....	Complete Large Size Box With Receptacle	5.95					

ADJUSTABLE GANG TYPE									
441	251	2511	Single Gang Less Recept. with 1/2" Cover Plate	\$ 5.35					
442	252	2512	Two " " " " " "	10.75					
443	253	2513	Three " " " " " "	16.10					
444	254	2514	Four " " " " " "	21.45					
445	.....	2515	Five " " " " " "	26.80					
Extra for Brass Cover Plate and Receptacle.....				Per Gang	1.25				

G. E. & T. & B BOXES									
G. E.	T. & B.	Description	Price						
8000	8000	Utility Outlet Box Non-Adjustable.....	\$1.00						
8200	1700	Two Wire Flr. " " " "	4.00						
8220-40	1701-2	Three " " " " " "	5.50						
8300	1703	Extension " " Telo. or Signal.....	2.75						
8400	1730-60	Two Wire " " Adj.—Deep or Shallow.....	6.25						
8420-40	1731-61-2	Three " " " " " "	7.25						
8500	1733-63	Telo. or Signal Floor Box Adj.—Deep or Shallow.....	5.00						

"BUSHED ELBOWS"—"BULB TEES"—FLOOR COUPLINGS									
Bushed Elbows Iron.....	3/8"	1/2"	3/4"	1"	1 1/4"				
"Bulb" Tees.....	\$0.60	\$0.80	\$1.15	\$3.45					
Floor Coupling Brass.....	1.40	1.65	2.00	4.35					

## BOXES, CUTOUT

TYPE "A" STEEL SURFACE CUTOUT BOXES									
Black									
Width	Length	3"	4"	6"	Width	Length	3"	4"	6"
Short	Long	Deep	Deep	Deep	Short	Long	Deep	Deep	Deep
4 1/2	5	\$ .60			12	30	\$10.75	\$12.40	
4 1/2	9	.65			15	15	2.75	4.15	
4 1/2	9 3 1/2	.65			15	18	3.00	4.75	
6	6	.65	\$ .90	\$1.20	15	24	5.70	6.50	
6	8	1.00	1.00	1.40	15	30	13.35	15.30	
6	9	.85	1.50	1.80	18	18	4.75	5.40	
6	12	1.35	1.25	1.95	18	21	10.65	12.50	
8	8	1.35	1.10	1.70	18	24	12.20	13.00	
8	10	1.45	1.25	2.00	18	30	15.20	15.40	
8	12	1.80	1.50	2.25	18	36	17.80	19.40	
9	9	1.10	1.80	2.30	18	40	19.50	21.30	
9	12	1.40	2.15	2.60	24	24	15.30	17.40	
10	10	1.70	1.50	2.35	24	30	19.10	20.80	
10	12	1.95	1.60	2.65	24	36	22.35	23.75	
10	15	2.35	1.85	3.10	24	40	24.30	26.60	
10	18	2.70	3.00	3.60	24	44	41.35	45.30	
12	12	2.25	1.80	3.00	30	30	27.20	29.65	
12	15	2.40	2.30	3.50	30	36	41.55	47.40	
12	18	.....	2.50	4.00	30	42	48.85	53.00	
12	24	.....	4.40	5.40	30	48	56.70	61.30	

For Galvanized Boxes Add 25% to above prices.

## BELLS & BUZZERS

Ansonia									
Name	No.	Description	Buzzer	2 1/2"	3"	4"	Cow or		
Ansonia	656	Sgle. Coil Non Adjust.	\$ .40	\$ .45					
Ansonia	657	Dble. Coil Non Adjust.	.50	.55	\$ .60				
Wizard	659	Dble. Coil Non Adjust.	.90	.95	1.05	\$1.35	\$1.65		
Eureka	641	Dble. Coil Adjust. Class							
Acme	631	Dble. Coil Adjust. Class	.95	1.00	1.25	1.60	1.80		
Eureka	621	A.....	1.35	1.40	1.50	1.80	2.10		
Monitor	661	Dble. Wood Box Bell	1.20	1.35	1.40	1.65	1.85		
Wizard	666	Round Type Monitor			1.50				
Ansonia	663	Watch Case Buzzer Round	1.25						
Ansonia	664	Comb. Bell & Buzzer	1.00	1.00	1.10				
Ansonia	664	Comb. Bell & Buzzer		1.15					

## BELLS AND BUZZERS—Continued

Skeleton and Weatherproof Bells									
Size	2 1/2"	3"	4"	5"	6"	7"	8"	10"	12"
620 D.C. Skeleton	\$4.55	\$5.00	\$5.75	\$7.00	\$8.75	\$12.35	\$13.20	\$20.60	
622 D.C. Weatherprf		13.00	14.65			18.15	30.30	\$40.85	
624 Wthpl. Trans. Bell		16.30	17.95			21.85	37.10	42.30	

Edwards									
Name	No.	Size	Description	Price					
Nubel	735	2 1/2"	Two Coil Non-Adjust.—Gray Enam. Bell	\$ .65					
	736	.....	" " " " " Buzzer	.60					
Dixie	720	2 1/2"	" " Class C—Non-Adjust. Bell	.95					
	725	.....	" " " " " Buzzer	.90					
Combell	737	2 1/2"	Two Coil Non-Adjust.—Gray Enam. Bell & Buzz.	1.15					
Tubell	738	.....	Dble. Coil Non-Adjust.—Gray Enam. Two Bells	1.20					
Cadet	710	2 1/2"	Two Coil—Class B—Adjust. Bell	1.00					
	715	.....	" " " " " Buzzer	.95					
	712	3"	" " " " " Bell	1.25					
	714	4"	" " " " " Bell	1.60					
Buz-A-Bell	730	2 1/2"	Two-Coil—Class C Comb. Bell & Buzzer	1.80					
Monitor	156	3"	Monitor Bell—Nickel Plated Gong	1.60					
Bronx	750	1 1/2"	Nickel Watch Case Buzzer	1.25					
Buzzer	16	.....	Flush Buzzer fits Standard Switch Box	2.40					

## Skeleton D. C. & Transformer Inside Bells & Buzzers

Size	3"	4"	6"	8"	10"	12"	Buzzer
17 "Economy" Skelet. Bells	\$5.50	\$6.75	\$8.75	\$14.25	\$21.25	\$27.50	
510 A. C. Transformer		9.40	10.15	18.90	23.45	41.90	\$7.00

## Edwards—Lungen

No. 13 Bells									
Size	1"	1 1/4"	1 1/2"	2"	3"	4"	6"	Cow or Sleigh	Price
1"									\$2.00
1 1/4"									1.80
1 1/2"									1.90
2"									2.00
3"									2.20
4"									2.40
6"									2.25

## No. 15 Buzzers

No.	Price
No. 1	\$1.85
No. 2	1.40
No. 3	1.70
No. 4	2.00
No. 5	2.00

## Partrick & Wilkins Iron Box Bells

Small 2 1/2" Iron Box Bell Non-Adjust. Dble. Magnet	\$ .40
Small 1 3/4" Iron Box Bell Non-Adjustable Double Magnet	.85
Fancy Gong Cow or Sleigh Non-Adjust. Dble. Magnet	1.65
King Monitor Bell	1.60
6" Large Iron Box Bell for Battery Current	6.50
8" " " " " " "	8.00

## Buzzers

No. 1 Small Iron Box Buzzer Non-Adjust. Dble. Magnet	\$ .40
Watch Case Buzzer Nickleled	1.10
Midget Buzzer Nickleled	1.90
Wood Box Buzzer	2.15
Flush Buzzer with Flush Plate	3.00

## Wood Box Bells

Regular Type	Price	Large Type	Price
2 1/2" Regular.....	\$ 2.20	6" Regular.....	\$ 6.50
3" " " " " "	2.25	8" " " " " "	8.00
4" " " " " "	2.65	10" " " " " "	13.25
Standard Cow or Dinner.....	3.05	5" Dinner.....	11.40
3" Dinner.....	6.20	6" " " " " "	13.30
4" " " " " "	8.75	5" Cow.....	14.00
3" Cow.....	6.60	6" " " " " "	16.00
4" " " " " "	10.00		

## Stanley & Patterson

Name	No.	Description	Buzzer	2 1/2"	3"
Competition	400-1	Dble. Coil Non-Adjust.	\$ .60	\$ .65	
Eclipse	200-3	" " " " " "	.60	.95	\$1.00
Marlo	211-18	" " Adjust. B	.95	1.00	

## Push Buttons, Etc.

## Brackets for Insulators

## PUSH BUTTONS, TREADS, SPRINGS

## STANDARD PUSHES AND TREADS

Description	Ans.	Edw.	Fara.	P&W	Price
Round 1 1/4" and 1 1/2" Stamped Brass.....	506	603	SP51	29	\$0.20
Round 2 1/4" Stamped Brass.....	527	600	SP50	27	.25
Round 2 1/2" with Card Holder Stamped Brass.....	507	601	SP57	35	.40
Rectangular 4x2" Stamped Brass.....	604	SP54	55	.40	
Rectangular 3 1/4"x1 1/4" Stamped Brass.....	605	SP53	50	.40	
Oval 2 1/4"x1 1/4" Stamped Brass.....	606	SP55	...	.30	
Oval 4 1/2"x2" Stamped Brass.....	609	SP56	...	.45	
Pear Push Buttons—Wood or Composition.....	505	67	5-9	3	.60
Pear Push Buttons—Metal, Nickel or Brass.....	508	MP8	...	.85	
Desk Buttons—1/4" Hole—Nickel.....	562	59	7A	4	.75
Desk Buttons—1/2" Hole—Nickel.....	63	...	4	.65	
Desk Buttons—3/4" Hole—Nickel.....	D83	620	5A	4	.45
High Voltage 3/4" Hole—110 Volts.....	85	...	855	2.40	
Table Clamp with Push Button.....	571	206	TC1	...	1.00
Floor Pushes Combination Nickel.....	560	235	CFP2	...	.85
Floor Treads—"Daisy" "Dixie".....	800	290	FT1	...	1.50
Wood Push Buttons.....	...	...	...	...	.20

## BAKELITE OR COMPOSITION PUSHES

Round Plain 1 1/4" Diam.....	\$0.30	Rectangular Plain 1 1/4"x3/4".....	\$0.40
Octagon Fancy 1 1/4"x1 1/4" Diam. .35		Rectangular Fancy 1 1/4"x3/4".....	.60
Oct. Card Holder 2 1/4"x2 1/4" Diam. .40		Rec. Double Card Holder.....	.85

## DESK PUSHES—COMPOUND

## With Buttons

Make and Description	1	2	3	4	5	6
Edw. #146—Bakelite Block.....	\$2.10	\$2.50	\$3.20	\$3.65	\$4.50	\$5.25
Edw. #197 Less Cord Bake.Bl.....	3.50	4.75	6.00	7.25	8.50	9.75
Edw. #197 with 6' Cord Bake.Bl.....	4.05	6.10	7.75	9.45	11.15	12.85
Edw. #190 Wood—Less Cord.....	4.00	5.35	6.60	8.10	9.40	10.80
Edw. #190 Wood with Cord.....	4.45	6.65	8.35	10.30	12.05	13.90
Fara. #4C Wood Less Cord.....	2.60	2.80	2.60	3.05	3.50	3.90
Fara. #2A Wood Less Cord.....	4.90	7.00	8.50	10.60	12.40	13.80
Fara. B.D.P. Bake. Less Cord.....	3.50	4.75	6.00	7.25	8.50	9.75
Fara. M.D.P. All Metal Less Cord.....	6.00	11.00	16.00	21.00	...	...
P&W #4 Wood Less Cord.....	2.60	2.80	3.50	4.30	4.85	5.60
P&W #5 Wood Angle Less Cord.....	...	...	...	13.00	...	13.95
P&W #12 Wood Less Cord.....	3.30	4.25	5.45	...	...	6.00

## DOOR AND WINDOW SPRINGS

## Door Springs

Open Circuit Door Spring.....	\$0.40	Open Circuit Single.....	\$0.60
Closed Circuit Door Spring.....	...	Open Circuit Double.....	.85
Open Circuit Make and Break... .50		Close Circuit Single.....	1.00
Open Circuit Door Trip.....	1.00	Open Circuit Transom.....	1.60

## Window Springs

## OTHER PUSH BUTTONS

## Ansonia

Round Stamped	Price	Round Cast	Price
514 1 1/4" Loose Back.....	\$0.30	511 1 1/4" Loose Back.....	\$0.90
515 2 1/4" Loose Back.....	.40	512 2 1/4" Loose Back.....	1.00
579 1 1/2" Flush Push.....	1.00	508-10 2 1/4" Loose Back.....	1.00
E33 1 1/4" Flush Push.....	1.00	540 2 1/4" Loose Back.....	.60
		550 2 1/4" Loose Back.....	.85
		570 2 1/4" Loose Back.....	.75

## Other Ansonia Push Buttons, Etc.

F-33 Stamped Flush Push.....	\$0.70	545 Oblong 2 Gang for Cards.....	\$1.85
G-33 Stamped Diamond Push.....	.70	545 Oblong 3 Gang for Cards.....	2.65
521 Stamped Push.....	.75	545 Oblong 4 Gang for Cards.....	3.65
528-534 Stamped Push.....	.95	546 Oblong 1 Gang.....	1.65
536-537 Stamped Push Loose Back.....	1.00	547 Oblong 2 Gang.....	1.50
538 Stamped Oblong Push.....	1.25	548 Oblong 1 Gang.....	.75
541 Oblong for Card.....	1.65	549 Oblong 1 Gang.....	1.20
544 Oblong for Card.....	1.20	578 Diamond Push.....	.70
Combination Floor Pushes Complete 573.....	2.50		
700 1 Point Wood Base Switch.....	.45		

## Edwards

## Round Desk Buttons

## Oblong Push Buttons

621—1/4" Hole.....	\$1.40	602—2 Gang for Cards.....	\$1.00
622—1/2" Hole.....	1.45	607—Single for Cards.....	.40
625—3/4" Hole.....	.50	608—Single.....	.45
1780—2 1/2" Watertight.....	3.00	650—Single Solid Cast Brass... 1.10	

## Partrick &amp; Wilkins

## Round Push Buttons

Stained Wood Push #2.....	\$0.15
Oak Wood Regular #1.....	.35
Oak Open, Closed and Dbl. Cont. #1.....	.65
Oak Triple Contact #1.....	.90
Cast Brass 1 1/4" Diam. #8.....	.55
Cast Brass 2 1/4" Diam. #9.....	.65

## Oblong Pushes

16 Cast Brass 4 1/4"x1 1/4" Screw Cap.....	\$1.55
31 Cast Brass 5 1/2"x2 1/4" Screw Cap.....	2.15
44 Cast Brass 4 1/2" Screw Cap.....	1.40
708 Wrought Push and Speak 1 Pce.....	1.00
907 2 Button and Card Holder.....	2.15
908 3 Button and Card Holder.....	2.95
909 4 Button and Card Holder.....	4.55

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## OTHER PUSH BUTTONS—Continued

## Partrick &amp; Wilkins

## Desk Push Buttons

Car Push 1 1/4" Hole Black Center.....	\$0.45
Multiple 1 1/4" Hole Black Center.....	1.35
Pony 3/4" Hole Black Center.....	1.85

## Pear Shape Pushes

Compound Maple 2 Button.....	\$2.00
Compound Maple 3 Button.....	3.00
Wood Rosettes for above.....	.40

## MULTIPLE PUSH BUTTONS

## Couch "Pushrites"

## With Card Holders

Number of Buttons	Wood Base Type		Flush Brass Plate Type	
	Plain Base Number	Weighted Base Price	Number	Price
4	7900	\$ 3.35	7980	\$ 3.75
6	740	4.60	799	5.20
8	7910	5.80	7990	6.85
12	7921	8.30	79010	9.60
16	7930	10.80	79020	12.45
20	793	13.30	7902	15.40
			797	21.60

## COUCH UNMOUNTED PUSH BUTTONS "WORKRITES"

No. 97 for 1/2" Hole.....	\$0.50
Adaptor No. 0684 for same.....	.05

## BRACKETS FOR INSULATORS

## WOOD BRACKETS

Each	Each
1 1/4" x 2" x 10".....	\$ .07
1 1/2" x 2" x 12".....	.08
1 1/2" x 2 1/4" x 12".....	.09
2" x 2 1/4" x 12".....	.10
2" x 3" x 12".....	.15

## PINS

Each	Each
Locust 1 1/4" x 8".....	\$ .06
Oak 1 1/4" x 8".....	.05
Locust 1 1/2" x 9".....	\$ .10
Oak 1 1/2" x 9".....	.08

## HOUSE BRACKETS WITHOUT INSULATORS

## Peirce

No.	Light Type Points	Price	No.	Heavy Type Points	Price	No.	Corner Type Points	Price
153	One	\$ .25	154	One	\$ .40	150	One	\$ .20
253	Two	.55	254	Two	.80	242	Two	.55
353	Three	.90	354	Three	1.10	342	Three	.80

## WIREHOLDERS WITH INSULATORS

## Peirce

No.	Wires	Spacing	Price
1607	One	0"	\$ .25
190	"	0"	.25
191	"	0"	.30
296	Two	6"	.55
299	"	6"	.55
394	Three	4 1/2"	.80
396	"	6"	.85

## HOUSE RACKS WITH INSULATORS

## Peirce

No.	Wires	Length	Space	Price
183	1	8 1/4"	0"	\$0.40
2925	1	0	0"	.35
494	4	13 1/4"	4 1/4"	.95
286	2	12 1/4"	6 1/4"	.80
383	3	12 1/4"	3"	.95
386	3	18 1/4"	6"	1.20

## SECONDARY RACKS WITH INSULATORS

## Peirce

No.	Light Type Wires	Space	Price	No.	Heavy Type Wires	Space	Price
276	2	6"	\$ .90	278	2	8"	\$1.30
376	3	6"	1.30	378	3	8"	2.15
1276	2	6"	.85	1278	2	8"	1.20
1376	3	6"	1.20	1374	3	4"	1.35
2768	2	8"	.90				
3768	3	8"	1.30	1378	3	8"	2.00

## INSULATORS ONLY FOR ABOVE BRACKETS

## Peirce

355 Insulator.....	\$ .20	1603 Insulator.....	\$ .10
356 ".....	.25	1606 ".....	.15
465 ".....	.30		

## UNIVERSAL RACK UNITS

## Less Insulators

No.	Each
702 Rack Foot with Bolt.....	\$ .20
704 4" Extension.....	.25
708 8".....	.35
712 12".....	.45

### HOUSE BRACKETS WITHOUT INSULATORS

National Elec. Products								
Light Type			Heavy Type		Corner Type			
No.	Points	Price Each	No.	Points	Price Each	No.	Points	Price Each
106-10	1	\$ .35	106-10	1	\$ .45	111-10	1	\$ .50
	..	....	123-6-7	1	.40	111-50	1	.35
106-26	2	.55	106-26	2	.80	....	..	....
106-36	3	.60	106-36	3	1.15	111-36	3	.60
106-36	3	.85	106-36	3	1.15	111-36	3	.90

### HOUSE RACKS WITH INSULATORS

National Elec. Products.									
Light Type			Heavy Type						
No.	Points	Length	No.	Points	Length				
104-10	1	5 1/4	101-24	2	9 1/4				
104-25	2	11 1/4	101-35	3	13 1/4				
104-36	3	18	101-44	4	17 1/4				
104-53	5	18	101-54	5	21 1/4				
104	Insulator Only		101	Insulator Only					
		Each \$ .45			Each \$1.10				
		1.00			1.60				
		1.60			2.20				
		1.25			2.75				
		1.60			3.20				
		1.25			3.75				

### WIREHOLDER ACCESSORIES

National Elec. Products				
No. 5000 Corner Chair	.....	\$ .13	No. 5040 Break Arm Strap	..... \$ .14
No. 5020 Insulator	.....	.18	No. 5051 " Bolt	..... .30
No. 5021 U Bolts & Nuts	.....	.10	No. 5052 T Head Screw	..... .03

### SINGLE POINT SCREW BRACKETS

National & Findlay				
Nation- al	Find- al	Nation- al	Find- al	Nation- al
No.	No.	No.	No.	No.
5211	1930	\$ .20	5311	1929
5211L	.....	.22	5311L	.....
5213	1930C	.25	5313	1929C
5213L	.....	.28	5313L	.....

### WIREHOLDERS WITH INSULATORS

National & Findlay									
For One Wire			For Two Wires			For Three Wires			
Nation- al	Each	No.	Nation- al	Each	No.	Nation- al	Find- lay	No.	Each
5011.....	\$ .28	5002	2002	\$ .60	5003	2013			\$ .8
5001.....	.25	5012	.....	.55	5023	2003			.8

### WIREHOLDERS WITH INSULATORS

National Elec. Products							
Light Type			Heavy Type				
No.	Points	Length	Each	No.	Points	Length	Each
105-1X	1	6"	\$ .25	105-1	1	6"	\$ .60
105-1	1	6"	.30	105-10	1	6"	.80
105-10	1	4 1/4"	.30	105-10	1	6"	1.20
105-25	2	10 1/4"	.65	105-25	2	11 1/4"	1.20
105-29	2	13 1/4"	.85	105-29	2	14 1/4"	1.80
105-34	2	15 1/4"	.85	105-34	3	17 1/4"	1.80
105-36	3	10 1/4"	.48	105-36X	3	17 1/4"	1.80
105	Insulator Only		12	105	Insulator Only		12

### B-SUNDRIES, BOLTS, ETC.

#### CARRIAGE BOLTS

Galvanized				
1/4" Diam.	3"	3 1/4"	4"	5"
Each	\$ .03	\$ .04	\$ .04	\$ .05
1/2"	.06	.07	.07	.08

#### MACHINE BOLTS WITHOUT WASHERS

Galvanized				
Diam.	3"	4"	5"	6"
Each	\$ .04	\$ .05	\$ .05	\$ .06
1/2"	.08	.09	.10	.11
3/4"	.13	.15	.17	.19
1"	.22	.24	.26	.29

#### FLAT CROSS ARM BRACES

Galvanized				
Length	20"	22"	24"	26"
1 1/2 x 1/4	\$ .20	\$ .20	\$ .25	\$ .30
1 1/4 x 1/4	.20	.25	.25	.30

#### STOVE BOLTS

Round or Flat Head				
Length	1 1/2"	2"	2 1/2"	3"
Up to 1"	\$ .10	\$ .10	\$ .12	\$ .15
1 1/4 to 1 1/2"	.10	.10	.12	.15
1 1/2 to 2"	.10	.12	.15	.18
2 1/4 to 3"	.20	.25	.30	.40
3 1/4 to 4"	.25	.30	.35	.45

#### TOGGLE BOLTS, STEEL

"Paine"				
Size—Diameter	3"	3 1/4"	4"	5"
1/4" Long	\$ .10	\$ .10	\$ .10	.....
1/2" " "	.10	.10	.10	.11
3/4" " "	.11	.11	.12	.13
1" " "	.13	.13	.14	.15

NOTE: For Brass Toggle Bolts—2 1/2 times above prices.

### REDUCING WASHERS

For Outlet Boxes & Steel Cabinets				
Reducing Washers	3/4"	1"	1 1/4"	1 1/2"
Price Each	\$ .02	\$ .02	\$ .03	\$ .05

### ROUND WOOD FIXTURE BLOCKS

Solid Half or Full Plowed				
3" x 4" Round	4 x 5" Round	5 x 6" Round	6 x 8" Round	8 x 10" Round
\$ .12	\$ .15	\$ .18	\$ .25	\$ .35

Ceiling Button—P & S Porcelain No. 170—Each..... \$ .12  
Switch Bases—See Snap Switches Page PL-19.

### CORDS, FIXTURE, LAMP AND HEATER

#### SINGLE FIXTURE CORD

Single Lamp Cord				
Type	No. 18	No. 16	No. 14	No. 12
Single Cotton Covered Cord—Light	F-64	\$ .01	\$ .02	\$ .02 1/2
Single Cotton Covered Cord—Heavy	F-32	.01 1/2	.02	.03
Single Artificial Silk Cord—Light	F-64	.01 1/2	.02 1/2	.03
Single Artificial Silk Cord—Heavy	F-32	.01 1/2	.03	.04

#### DOUBLE LAMP CORD

Regular Lamp Cord				
Type	No. 18	No. 16	No. 14	No. 12
Cotton Covered Twisted Pair	C	\$ .02	\$ .02 1/2	\$ .04
" " Parallel Pair	PO	.02 1/2	.04	.05
" " Twisted Parallel Pair	PD	.03	.05	.....
Artificial Silk Twisted Pair	C	.02 1/2	.04	.05
" " Parallel Pair	PO	.02 1/2	.05	.07

x P. D. Cord is not listed in N. E. C. Code Approved Cords.

#### REINFORCED CORD

Not Asbestos				
Type	No. 18	No. 16	No. 14	No. 12
Cotton Covered Light Type 1/4"	P	\$ .03	\$ .04	\$ .07
" " Heavy " " "	P	.04	.05	.07
Weatherproof Light Type 1/4"	PSWP	.03 1/2	.04	.07
" " Heavy Type 1/4"	PWP	.04	.05	.07

#### HEAVY DUTY PORTABLE CORD

"Duracord" or Similar. Extra Reinforced				
Type	No. 18	No. 16	No. 14	No. 12
PS Light 2 Cond. Port. Cord	.....	\$ .08	.....	.....
P Heavy 2 " " "	.11	.13	.17	.22
" " " " "	.....	.14	.22	.26

#### ALL RUBBER CORD

"Tirex" "Royal" "Super-Service" "Indestructo" or Similar				
Type	No. 18	No. 16	No. 14	No. 12
SJ Junior 3 Conductor Black	.....	\$ .06	.....	.....
" " " Green	.08	.10	.....	.....
" " " Black	.11	.14	.....	.....
S Type Heavy 3 Conductor Black	.12	.14	\$ .10	\$ .24
" " " " "	.15	.16	.24	.29
" " " " "	.17	.21	.29	.38
" " " Sgl. Cond. Black	.08	.09	.10	.11

#### HEATER CORD

Asbestos Covered				
Type	No. 18	No. 16	No. 14	No. 12
Stand. Twisted or Wound Asbest. 1/4"	.....	\$ .05	\$ .05	\$ .08
American Beauty Heater Cord Super	.....	.09	.12	.13
Flexible	.....	.07	.09	.10
Rockbestos Heater Cord	.....	.09	.08	.....
Universal No. 9092 Super Flexible	.....	.....	.....	.....

"Deltabeston" Heater Cord				
Type	No. 18	No. 16	No. 14	No. 12
Type A Asbestos Braid overall Loco	.....	\$ .09	.....	.....
Cab Cord	.....	.07	.08	.10
" C Cotton Braid overall	.07	.08	.08	.10
" D " " on ea. cond.	.07	.09	.08	.10
" E Cotton on ea. Cond. & over both	.08	.10	.09	.11

NOTE—For Armored Cords See Page PL-8.  
Extension Cords See Page PL-10.  
Fixture Wire See Pages PL-26 & 27.  
Bell Wire See Page PL-27.

#### MISCELLANEOUS CORD

Description				
Type	No. 18	No. 16	No. 14	No. 12
x Brewery Cord	EB	\$ .03	\$ .04	\$ .05
x Canvas Cord	CC	.05	.06	.08
x Deck Cable	PWP	.05	.07	.10
x Packinghouse Cable	PKWP	.06	.06	.07 1/2
x Stage & Theatre Cable	T	.05	.06	.07 1/2
Type "K"	K	.05	.06	.07 1/2

Type "K" replaces Brewery, Canvas and Packinghouse Cables. They are not included in present listing of N. E. C. Code Approved Cords.

x Note—These prices are based on less than coil lot trade prices.

#### CONDUCTING BELL CORD

Spun Silk				
Number of Conductors	2	3	4	5
Cond. Cond. Cond. Cond. Cond.	.....	.....	.....	.....
Price Per Foot	\$ .08	\$ .15	\$ .20	\$ .25

Note—For Armored Lamp Cord See Page PL-9.



## RIGID CONDUIT

## THIN WALL CONDUIT

**ELBOWS OR BENDS, COUPLINGS, OR UNIONS,  
BUSHINGS, LOCKNUTS, REDUCERS**  
Price Each

## FLEXIBLE METALLIC CONDUIT

**"Greenfield", "Flexsteel", or Equivalent**

## RUNNING THREAD. PIPE

## CONDUIT PENNIES

## CONDUIT WOOD PLUGS

## CABLE, ARMORED & NON-METALLIC SHEATHED

## CABLE, ARMORED & NON-METALLIC SHEATHED

**ARMORED CABLE, "BX", "ABC", "FLEXSTEEL", OR  
SIMILAR**

*Electrical Contracting, April, 1931*

**"ABC" LEAD COVERED ARMORED CABLE**

		Price Per Foot		
		No. 5	No. 6	No. 4
Single Conductor Solid Lead	Covered			
	Stranded	\$ .15	\$ .22	
Two	" Solid			
	Stranded	.84	.45	
Three	" Solid			
	Stranded	.46	.64	\$ .88

## "ABC" ARMORED LAMP CORD

	Per Foot		
Single Strip	No. 18	No. 16	No. 14
Plain Armored Lamp Cord, Two Conductor.....	\$ .11	\$ .12	\$ .13
Add 30% for Double Strip			

## NON-METALLIC SHEATHED CABLE

**“Romex”, “Loomwire”, “Wireflex”, or similar**

(With or Without Ground Wire)	#14	#12	#10	#8	#6	#4
Wire 2 Conductor per Foot.....	\$0.05	\$0.06½	\$0.09	\$0.13	\$0.19	\$0.25
Wire 3 Conductor per Foot.....	.08	.10	.13	.20	.27	.38
Fitting-Straps Each.....	.01	.01	.01	.01	.01	.01
Fitting-Clips Each.....	.03	.03	.03	.....	.....	.....
Fitting-Connectors Each.....	.10	.10	.20	.20	.30	.55

## CUTOUTS OR FUSE BLOCKS

## PLUG CUTOUTS

**30 Amp. Porcelain**

Description	Price
Single Pole—Main Line.....	\$2569
Double " ".....	\$2965
Triple " ".....	\$2165
Double Pole Single Branch.....	\$1855
" " Double ".....	\$2587
" " Single or Double Cross Branch.....	\$820
Triple to D. P. Double Branch.....	\$2199
Single Pole Single Brch.....	\$942
" " Double ".....	\$2135

### DEAD FRONT CUTOUT BASES

Plug Type—30 Amp.

BRYANT		With Short Cover		With Long Cover	
		Numbers	Price	Numbers	Price
3	Wire Double Branch—4 Circuit..	72035	\$3.35	82035	\$3.65
G. E. or TRUMBULL		With Covers		Without Cov.	
		G.E.	Trumbull	Price	G.E. Price
3	Wire Single Branch—2 Circuit..	2435	3199	\$1.35	\$1.65
3	" Double "—4 " "	2440	4199	1.80	2.41
					.85

**ENCLOSED CARTRIDGE CUTOUTS OR BASES**  
 Porcelain Base, 250 Volts                      0-30      31-60      61-100

Potterman's Patent, 250' Voids			
	Amp.	Amp.	Amp.
Single Pole Main Line Enclosed Porcelain.....	\$ .40	\$ .65	\$1.20
Double Pole Main Line Enclosed Porcelain.....	.55	1.20	2.30
Triple Pole Main Line Enclosed Porcelain.....	.85	1.65	3.30
Double Pole Single Branch Porcelain.....	.75	1.60	.....
Triple Pole Single Branch Porcelain.....	1.25	3.30	.....
Triple to Double Pole Double Branch Porcelain .....	1.50	3.80	.....
Triple Pole Single Branch Porcelain.....	1.30	3.00	.....
Double Pole Double Branch Porcelain.....	2.00	4.00	.....
Single Pole Main Line Cutout Base 600 Volt.....	.70	1.00	1.20

**SLATE BASE**

		250 Volt	600 Volt	SERIES BASE					
		Single Pole-Slate	Base-250 V. ....	30 A.	60A.	100A.	200A.	400A.	600A.
"	"	"	"	\$.60	\$.90	\$1.25	\$2.10	\$5.20	\$ 6.80
"	"	"	600 V. ....	....	....	1.60	2.50	6.00	7.15

### C-SUNDRIES

## GROUND CLAMPS

Standard Adjustable Ground Clamps, any make	¾ to 1"		¾ to 2"		¾ to 3"		¾ to 4"	
	No. 3	No. 4	No. 5	No. 6	No. 5	No. 6	No. 5	No. 6
Blackburn.....	.24	.28	.32	.35	.35	.35	.45	.45
Other Types	R. 12" 1 1/2" 2" 2 1/2" 3" 3 1/2" 4" 4 1/2" 5" 5 1/2" 6" 6 1/2" 7" 7 1/2" 8" 8 1/2" 9" 9 1/2" 10" 10 1/2" 11" 11 1/2" 12" 12 1/2" 13" 13 1/2" 14" 14 1/2" 15" 15 1/2" 16" 16 1/2" 17" 17 1/2" 18" 18 1/2" 19" 19 1/2" 20" 20 1/2" 21" 21 1/2" 22" 22 1/2" 23" 23 1/2" 24" 24 1/2" 25" 25 1/2" 26" 26 1/2" 27" 27 1/2" 28" 28 1/2" 29" 29 1/2" 30" 30 1/2" 31" 31 1/2" 32" 32 1/2" 33" 33 1/2" 34" 34 1/2" 35" 35 1/2" 36" 36 1/2" 37" 37 1/2" 38" 38 1/2" 39" 39 1/2" 40" 40 1/2" 41" 41 1/2" 42" 42 1/2" 43" 43 1/2" 44" 44 1/2" 45" 45 1/2" 46" 46 1/2" 47" 47 1/2" 48" 48 1/2" 49" 49 1/2" 50" 50 1/2" 51" 51 1/2" 52" 52 1/2" 53" 53 1/2" 54" 54 1/2" 55" 55 1/2" 56" 56 1/2" 57" 57 1/2" 58" 58 1/2" 59" 59 1/2" 60" 60 1/2" 61" 61 1/2" 62" 62 1/2" 63" 63 1/2" 64" 64 1/2" 65" 65 1/2" 66" 66 1/2" 67" 67 1/2" 68" 68 1/2" 69" 69 1/2" 70" 70 1/2" 71" 71 1/2" 72" 72 1/2" 73" 73 1/2" 74" 74 1/2" 75" 75 1/2" 76" 76 1/2" 77" 77 1/2" 78" 78 1/2" 79" 79 1/2" 80" 80 1/2" 81" 81 1/2" 82" 82 1/2" 83" 83 1/2" 84" 84 1/2" 85" 85 1/2" 86" 86 1/2" 87" 87 1/2" 88" 88 1/2" 89" 89 1/2" 90" 90 1/2" 91" 91 1/2" 92" 92 1/2" 93" 93 1/2" 94" 94 1/2" 95" 95 1/2" 96" 96 1/2" 97" 97 1/2" 98" 98 1/2" 99" 99 1/2" 100" 100 1/2" 101" 101 1/2" 102" 102 1/2" 103" 103 1/2" 104" 104 1/2" 105" 105 1/2" 106" 106 1/2" 107" 107 1/2" 108" 108 1/2" 109" 109 1/2" 110" 110 1/2" 111" 111 1/2" 112" 112 1/2" 113" 113 1/2" 114" 114 1/2" 115" 115 1/2" 116" 116 1/2" 117" 117 1/2" 118" 118 1/2" 119" 119 1/2" 120" 120 1/2" 121" 121 1/2" 122" 122 1/2" 123" 123 1/2" 124" 124 1/2" 125" 125 1/2" 126" 126 1/2" 127" 127 1/2" 128" 128 1/2" 129" 129 1/2" 130" 130 1/2" 131" 131 1/2" 132" 132 1/2" 133" 133 1/2" 134" 134 1/2" 135" 135 1/2" 136" 136 1/2" 137" 137 1/2" 138" 138 1/2" 139" 139 1/2" 140" 140 1/2" 141" 141 1/2" 142" 142 1/2" 143" 143 1/2" 144" 144 1/2" 145" 145 1/2" 146" 146 1/2" 147" 147 1/2" 148" 148 1/2" 149" 149 1/2" 150" 150 1/2" 151" 151 1/2" 152" 152 1/2" 153" 153 1/2" 154" 154 1/2" 155" 155 1/2" 156" 156 1/2" 157" 157 1/2" 158" 158 1/2" 159" 159 1/2" 160" 160 1/2" 161" 161 1/2" 162" 162 1/2" 163" 163 1/2" 164" 164 1/2" 165" 165 1/2" 166" 166 1/2" 167" 167 1/2" 168" 168 1/2" 169" 169 1/2" 170" 170 1/2" 171" 171 1/2" 172" 172 1/2" 173" 173 1/2" 174" 174 1/2" 175" 175 1/2" 176" 176 1/2" 177" 177 1/2" 178" 178 1/2" 179" 179 1/2" 180" 180 1/2" 181" 181 1/2" 182" 182 1/2" 183" 183 1/2" 184" 184 1/2" 185" 185 1/2" 186" 186 1/2" 187" 187 1/2" 188" 188 1/2" 189" 189 1/2" 190" 190 1/2" 191" 191 1/2" 192" 192 1/2" 193" 193 1/2" 194" 194 1/2" 195" 195 1/2" 196" 196 1/2" 197" 197 1/2" 198" 198 1/2" 199" 199 1/2" 200" 200 1/2" 201" 201 1/2" 202" 202 1/2" 203" 203 1/2" 204" 204 1/2" 205" 205 1/2" 206" 206 1/2" 207" 207 1/2" 208" 208 1/2" 209" 209 1/2" 210" 210 1/2" 211" 211 1/2" 212" 212 1/2" 213" 213 1/2" 214" 214 1/2" 215" 215 1/2" 216" 216 1/2" 217" 217 1/2" 218" 218 1/2" 219" 219 1/2" 220" 220 1/2" 221" 221 1/2" 222" 222 1/2" 223" 223 1/2" 224" 224 1/2" 225" 225 1/2" 226" 226 1/2" 227" 227 1/2" 228" 228 1/2" 229" 229 1/2" 230" 230 1/2" 231" 231 1/2" 232" 232 1/2" 233" 233 1/2" 234" 234 1/2" 235" 235 1/2" 236" 236 1/2" 237" 237 1/2" 238" 238 1/2" 239" 239 1/2" 240" 240 1/2" 241" 241 1/2" 242" 242 1/2" 243" 243 1/2" 244" 244 1/2" 245" 245 1/2" 246" 246 1/2" 247" 247 1/2" 248" 248 1/2" 249" 249 1/2" 250" 250 1/2" 251" 251 1/2" 252" 252 1/2" 253" 253 1/2" 254" 254 1/2" 255" 255 1/2" 256" 256 1/2" 257" 257 1/2" 258" 258 1/2" 259" 259 1/2" 260" 260 1/2" 261" 261 1/2" 262" 262 1/2" 263" 263 1/2" 264" 264 1/2" 265" 265 1/2" 266" 266 1/2" 267" 267 1/2" 268" 268 1/2" 269" 269 1/2" 270" 270 1/2" 271" 271 1/2" 272" 272 1/2" 273" 273 1/2" 274" 274 1/2" 275" 275 1/2" 276" 276 1/2" 277" 277 1/2" 278" 278 1/2" 279" 279 1/2" 280" 280 1/2" 281" 281 1/2" 282" 282 1/2" 283" 283 1/2" 284" 284 1/2" 285" 285 1/2" 286" 286 1/2" 287" 287 1/2" 288" 288 1/2" 289" 28							

## STRAPS, CLIPS OR CLAMPS

Galvned. Straps, 2 Hole	<sup>3/16"</sup> \$ .01	<sup>1/2"</sup> \$ .01	<sup>5/8"</sup> \$ .01	<sup>1"</sup> \$ .01	<sup>1 1/8"</sup> \$ .02	<sup>1 1/2"</sup> \$ .02	<sup>1 3/4"</sup> \$ .04	<sup>2"</sup> \$ .05	<sup>2 1/2"</sup> \$ .06	<sup>3"</sup> \$ .08
Per Pound.....	\$ .20									
No. Straps per Pound.....	45	40	25	20	13	12	7	5	4	
Light Steel Straps, 1 Hole	.04	.05	.06	.08						
Mail Iron Clamps, 1 Hole	.06	.07	.08	.11	.18	.25	.45	.60	.80	
P & S Conduit Clamps										
With Bolts-Series 1400			.10	.14	.18	.20	.25			
Clips for Loom.....										

(See Also Page PL-27)

3c Each or 3 for 5c

### COLORING & FROSTING LIQUID

	7 ounce Cans	15 ounce Cans	30 ounce Cans	1/2 Pint Bottle	1 Pint Bottle	Quart Bottle
Crescent (McGill).....				\$1.25	\$2.50	\$5.00
Celco.....	\$2.50	\$4.00	\$7.50			
Franco.....				1.25	2.25	4.00
Permacolor.....				1.65	3.00	5.00

## CORD &amp; WIRE CONNECTORS

## SMALL FIXTURE &amp; WIRE CONNECTORS

## Solderless

Insulated Solderless Wire or Fixture Connectors Similar to "Ideal"	
"Marr" "Sherman" "Simplex" "Wirelets" "Wirenuts" "Etc."—each	\$1.10
E-Z Insulated Solderless Wire or Fixture Connector	.05
Non-Insulated Solderless Wire Connectors—2 Screw—All Metal	.10

## SET SCREW CONNECTORS

## Round Brass

Wire Size	No.	No.	No.	No.	No.
	12-14	10	8	6	4
Divided Wall—2 Screws	\$ .06	\$ .08	\$ .09	\$ .10	\$ .14
Hole Thru					
2 " 4 "	.11	.12	.13	.15	.17
4 " 4 "					.20
Wire Size	No.	No.	No.	No.	No.
	2	1/0	2/0	3/0	4/0
Divided Wall—2 Screws	\$ .15	\$ .26	\$ .32	\$ .50	\$ .80
Hole Thru					
2 " 4 "	.20	.24	.30		
4 " 4 "	.22	.28	.30	.45	.60

## SOLDERLESS CONNECTORS

## Dossert or Penn-Union

Size Cond.	No.	No.	No.	No.	No.	No.	No.	No.	No.
	3 to 1	1/0	2/0	3/0	4/0	250,000	300,000	400,000	500,000
2 Way L's	\$0.75	\$0.80	\$1.00	\$1.20	\$1.40	\$1.65	\$1.90	\$2.50	\$2.05
Cable Taps	1.05	1.20	1.40	1.75	2.10	2.40	2.85	3.75	4.65
3 Ways & Y's	1.05	1.20	1.40	1.75	2.10	2.40	2.85	3.75	4.65
Lugs FB Ang.	.55	.60	.70	.90	1.10	1.20	1.40	1.85	2.40

## CORD &amp; MOTOR CONNECTORS

	No.	Price	No.	Price	No.	Price
Arrow	Complete		Body Only		Cap Only	
Midget Comp.	8238	\$ .60				
" " Arrotex	8239	.85				
Motor Conn.	RP-8221	.60	8221	\$ .55	RP	\$ .10
" " " "	RA-8222	.65	8222	.55	RA	.15
" " " "	RH-8224	1.05	8224	.75	RH	.35
" " " "	RG-8281	1.05	8281	.75	RG	.35
" " " "	8334 & 35	1.10	8335	1.10	8334	1.10
Bryant						
Motor Midget	KT-130	.70	130	.65	KR	.10
" Conn.	KG-103	.75	103	.55	KG	.25
GE						
Cord Conn.	1346-1347	.90	1347	.45	1346	.45
" " " "			1351	.60	2527	.10
" " " "	2719	1.50	2720	.95	2721	.35
" " " "	2715	.65	2716	.55	2717	.10
" " " "			1347	.40	1346	.40
Hubbell						
Cord Connector	5894	.90	5574	.55	5596	.25
" " " "	6116	.70	6118	.55	5964	.15
" " " "	6179	.75	6630	.55	6631	.20
" " " "	6180	.65	6630	.55	6181	.10
" " " "	5518	.80	5574	.55	5420	.25
" " " "	7083	1.35	7084	.85	7056	.55
" " " "	7090	1.80	7091	1.10	7092	.75
" " " "	6408	1.25	6409	.85	6149	.45
Weber						
Cord Connector	2274	.60	.74	.45	2200	.20
Wirt						
Cord Connector	.56	.55				

NOTE: For Attachment Plugs and other caps—See Pages PL-16 &amp; PL-17

## E-SUNDRIES

## EXTENSION CORDS—MADE UP

With Plug &amp; Socket, but Guards-Lamps &amp; Handles Extra

Length in Feet	With Lamp Cord and Key Socket		With Reinforced Cord and Key Socket		With Artificial Silk Cord and Key Socket	
	No. 18	No. 16	No. 18	No. 16	No. 18	No. 16
4 Foot.....	.75	.85	.80	.85	.80	.85
6 ".....	.80	.90	.85	.95	.85	.95
8 ".....	.85	1.00	1.05	1.00	1.05	1.05
10 ".....	.90	1.10	1.20	1.10	1.20	1.20
12 ".....	.95	1.20	1.30	1.20	1.30	1.30
14 ".....	1.00	1.30	1.45	1.30	1.45	1.45
16 ".....	1.05	1.40	1.55	1.40	1.55	1.55
18 ".....	1.10	1.50	1.65	1.50	1.65	1.65
20 ".....	1.15	1.60	1.75	1.60	1.75	1.75
22 ".....	1.20	1.65	1.85	1.65	1.85	1.85
24 ".....	1.25	1.75	1.95	1.75	1.95	1.95
Length in Feet	With All Rubber Cord and Weatherproof Socket		Light		Heavy	
	No. 18	No. 16	No. 18	No. 16	No. 18	No. 16
4 Foot.....	\$1.00	\$1.10	\$1.15	\$1.25		
6 ".....	1.20	1.30	1.40	1.50		
8 ".....	1.35	1.50	1.65	1.75		
10 ".....	1.50	1.70	1.90	2.00		
12 ".....	1.75	1.90	2.15	2.25		
14 ".....	1.90	2.10	2.40	2.50		
16 ".....	2.10	2.30	2.65	2.75		
18 ".....	2.25	2.50	2.90	3.00		
20 ".....	2.40	2.70	3.15	3.25		
22 ".....	2.65	2.90	3.40	3.50		
24 ".....	2.85	3.10	3.65	3.75		

## ELBOWS &amp; BENDS

## For Rigid Conduit

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"
Black	\$ .16	\$ .21	\$ .32	\$ .41	\$ .54
Galv.	.19	.24	.37	.46	.62
Size	2"	2 1/2"	3"	3 1/2"	4"
Black	\$ .88	\$1.45	\$3.70	\$8.10	\$9.40
Galv.	1.00	1.65	4.25	9.30	10.75

## EXPANSION SHIELDS &amp; ANCHORS

(Ackerman—Johnson—Chicago Expansion Bolt—Diamond—Dryvin—Packtite—Paine—Star or Similar)

## Screws Not Included.

Expansive Screw Anchors or Caulking Anchors for Machine Screws or Bolts.	Price	Hammer Drive Anchors With Nail	Price
Size Screw or Bolt		Size of Shield	
6-32 Screw.....	\$ .06	3/8" x 3/4" Shield	\$0.05
8-32 ".....	.07	3/4" x 1 1/4" ".....	.07
10-24 ".....	.08	1" x 1 1/4" ".....	.08
12-24 ".....	.10	1 1/4" x 1 1/4" ".....	.09
1-4x20 Bolt.....	.12	1 1/2" x 1 1/4" ".....	.10
5-16x18 ".....	.15	1 3/4" x 1 1/4" ".....	.12
3-8x16 ".....	.18	2" x 1 1/4" ".....	.14
7-16x14 ".....	.20	2 1/4" x 1 1/4" ".....	.16
1-2x13 ".....	.20	2 1/2" x 1 1/4" ".....	.20
5-8x13 ".....	.30	2 3/4" x 1 1/4" ".....	.22
		3" x 1 1/4" ".....	.25

## Multi-Size Screw Anchors

Length of Anchor.....	5 to 10	8 to 14	16 to 20	16 to 20
Price Without Screw.....	1/4"	1"	1 1/2"	1 3/4"
	\$0.04	\$0.05	\$0.06	\$0.08

## LAG SCREW ANCHORS (Diamond or Similar)

Takes Lag Screw	3/8"	1/2"	3/4"	1"	1 1/2"
Price Without Lag Screw.....	\$ .15	\$ .15	\$ .18	\$ .25	\$ .35
Takes Lag Screw	3/8"	1/2"	3/4"	1"	1 1/2"
Price Without Lag Screw.....	\$ .40	\$ .60	\$ .90	\$1.00	

## FUSES

## PLUG FUSES

Standard Plug Fuses—Any Make—\$.07 each or 5 for \$.25 (Some Manufacturers put these fuses up 4 in a box, in which case they should be retailed at 4 for \$.25.)

## ENCLOSED FUSES, NON-RENEWABLE

Amps.	Non-Indicating		Indicating	
	Price Each	Fuse	Price Each	Fuse
1 to 30.....	\$ .15	\$ .35	\$ .25	\$ .55
35 to 60.....	.25	.50	.40	.85
70 to 100.....	.80	1.15	1.25	1.85
110 to 200.....	1.55	1.95	2.30	3.10
225 to 400.....	2.75	4.20	4.50	6.80
450 to 600.....	4.25	6.15	6.80	9.90
650 to 800.....	8.90	11.15	13.85	17.35

## RENEWABLE FUSES

Amps.	Fuses		Links	
	250 Volts	600 Volts	250 Volts	600 Volts
1 to 30.....	\$ .50	\$ 1.10	\$ .03	\$ .05
35 to 60.....	1.00	1.25	.05	.08
65 to 100.....	2.00	3.00	.10	.10
110 to 200.....	4.00	5.00	.15	.15
225 to 400.....	7.50	11.00	.30	.30
450 to 600.....	11.00	16.00	.60	.60

## FUSE WIRE

FUSE PRICE						
Size in Amps.....		3/4	1	2		
Price Per Pound.....		\$66.00	\$65.00	\$3.65	\$2.30	
Price Per Foot.....		.01	.01	.01	.01	
Size in Amps.....	3	5	6	10	15	
Price Per Pound.....	\$2.00	\$1.50	\$1.50	\$1.30	\$1.30	
Price Per Foot.....	.01	.01 1/4	.02	.02 1/4	.03	
Size in Amps.....	20	25	30	40	50	
Price Per Pound.....	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	
Price Per Foot.....	.04	.05	.07	.08	.10	
Size in Amps.....	60	70	75	80	90	100
Price Per Pound.....	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Price Per Foot.....	.15	.20	.21	.22	.24	.25
Fuse Strip Any Amperage.....\$1.00 per lb.						

Fuse Strip Any Amperage....\$1.00 per lb.

## OPEN LINK FUSES

## Small Wire Type

Size in Amps.....	1 to 30	35 to 60	65 to 100
Numbers.....	00-0-1-2-3	2-3-5	5
Price Each.....	\$ .12	\$ .16	\$ .23

## Large Strip Type

Size in Amps.....	25-100	110-200	225-400
Numbers.....	7	7 to 16	10 to 16
Price Each.....	\$ .23	\$ .30	\$ .60
Size in Amps.....	425-600	600-800	800-1500
Numbers.....	10 to 16	25	40
Price Each.....	\$1.10	\$1.85	\$0.95

## STAMPED SHEET METAL LINK FUSES

Type of Link.....	B	C	D	E-F-H-I-L-M
C to C Distance.....	1 1/2"	2 1/4"	2 1/2"	See Catalog
Price Each.....	\$ .11	\$ .11	\$ .16	\$ .30

## THREADED CONDUIT FITTINGS

## STANDARD TYPES, COVERS EXTRA

"Condulets" "Taplets" "Unilets" "Electrolets" "V. V."

"Adaptilets" Etc.

Form 7	1/4"	3/8"	1"	1 1/2"	2"
A	\$ .33	\$ .44	\$ .60	\$ .87	\$ 1.12
B	.40	.50	.70	1.05	1.40
C	.50	.60	.85	1.25	1.75
CO-COV	.70	.91	1.05	1.75	2.25
E	.40	.50	.70	1.12	1.46
F	.70	1.12	1.75	3.08	4.46
Form 7	.70	.63	.91	1.47	1.96
LB-LF-LR-LR-LBB	.66	.63	.91	1.47	1.96
LB-LB-LR-LB	.91	1.12	1.33	1.75	2.80
P-PA	1.95	2.20	2.40	...	...
PC-PL	2.10	2.30	2.50	...	...
PT	2.40	2.65	2.95	...	...
PX	2.50	2.80	3.10	...	...
T All One Size	.67	1.05	1.12	1.71	2.37
TA All One Size	.98	1.05	1.40	2.18	3.22
TB-TL-TR	.68	.81	1.12	1.71	2.38
U-UB	.68	.75	1.10	1.76	2.35
X All One Size	.84	1.09	1.47	1.96	2.50
Gaskets	.14	.14	.21	.28	.28
Reducers	.21	.21	.28	.42	.56
Connectors CCT	.40	.42	.49	1.54	1.96
Unions U. N. Y.	.65	.75	1.10	1.75	2.65

Form 7	2"	2 1/2"	3"	3 1/2"	4"
A	\$2.32	\$5.46	\$ 6.50	\$10.60	\$11.70
B	3.65	5.46	7.30	9.10	16.65
C	3.40	6.24	8.10	11.70	14.30
CO-COV	4.45	6.75	10.27	16.38	17.95
E	3.00	5.46	6.50	10.60	11.70
F	7.00	10.66	13.26	23.53	32.50
Form 7	3.50	6.50	8.45	13.65	15.60
LB-LF-LR-LR-LBB	3.50	6.50	8.45	13.65	15.60
LB-LB-LR-LB	3.72	8.52	...	...	...
T All One Size	3.58	6.50	9.75	14.30	16.90
TA All One Size	5.53	...	...	...	...
TB-TL-TR	3.58	6.50	9.75	14.30	16.90
U-UB	4.20	7.80	10.15	16.38	18.75
X All One Size	4.90	7.80	13.00	16.90	20.80
Gaskets	.35	.52	.52	.65	.65
Reducers	.70	1.30	1.76	2.60	3.58
Connectors CCT	3.01	...	...	...	...
Unions U. N. Y.	4.10	6.65	11.15	...	...

For Form 6 LB Fittings See PL-13

COVERS  
For Above

	1/4"	3/8"	1"	1 1/2"	2"
Porcelain Covers with Holes	\$ .14	\$ .21	\$ .35	\$ .51	\$ .70
Composition	.28	.42	.70	1.40	1.54
Porcelain "Blank"	.49	.56	.84	1.54	...
Porcelain "For Drop Cord"	.22	.35	...	...	...
Metal Covers Blank Sheet Steel	.12	.16	.33	.45	...
"Cast Iron"	.21	.31	.49	.70	...
"with 1/4" Nipple"	.28	.35	.59	...	...
"with 3/8" " "	.33	.40	.54	...	...
"with 1/2" " "	.35	.42	.56	...	...
Porcelain Covers with Holes	\$ .67	\$ .84	\$ 1.12	\$ 1.26	...
Composition	1.68	1.96	4.46	6.30	...
Porcelain "Blank"	.63	.79	1.05	1.12	...
Porcelain "For Drop Cord"	.98	1.26	1.61	1.75	...
Metal Covers Blank Sheet Steel	.63	.79	1.05	1.12	...
"Cast Iron"	.98	1.26	1.61	1.75	...
"with 1/4" Nipple"	...	...	...	...	...
"with 3/8" " "	...	...	...	...	...
"with 1/2" " "	...	...	...	...	...

RECEPTACLES & ROSETTES  
For Above

	1/4"	3/8"	1"
Plug Receptacles 10 Amp. 2 Pole 250 Watt	\$ .66	\$ .63	\$ .70
" " 15 " 2 " 125 " "	.77	.84	.91
" " 10 " 3 " 250 " "	.84	.91	...
" " 15 " 3 " 125 " "	1.10	1.20	...
Lamp Receptacle 660 Watt with Shade Holder	.42	.49	.56
Cord Rosette	.42	.49	.56

FS SERIES FOR FLUSH DEVICES  
Shallow Type Without Covers, Any Make

No. Gangs	No. Pipes	Series	1/4"	3/8"	1"
Single Gang	One	FS-FSA	\$ .91	\$ 1.08	\$ 1.19
"	Two	FSC-FSL-FSR-FSLA-FSS-FSAA	1.05	1.26	1.54
"	Three	FSCA-FSCC-FSCT-FST	1.40	1.75	2.08
"	Four	FSX-FSCD	1.68	2.10	2.38
Two Gang	One	FS-FSA	1.55	1.82	1.96
"	Two	FSC-FSS	1.82	1.96	2.17
"	Three	FSD	2.03	2.17	2.31
2 Gang Tandem	One	FS	2.31	2.45	2.69
"	Two	FSC	2.45	2.59	2.73
Three Gang	One	FS-FSA	...	2.52	2.73
"	Two	FSC	...	2.66	2.87
"	Four	FSD	2.73	3.01	3.32
Four Gang	One	FS-FSA	...	3.08	3.32
"	Two	FSC-FSSE	...	3.29	3.50
"	Five	FSD	3.44	4.00	4.34

Electrical Contracting, April, 1931

## COVERS FOR FS FITTINGS

Description	Single Gang	2 Gang	3 Gang	4 Gang
Metal Cover for Flush or Surface Push Button Tumbler Switches	\$ .21	\$ .42	\$ .63	\$ .84
Metal Cast Covers Guarded for Switches	.50	.91	1.40	1.96
Covers for Single Flush Receptacles	.35	.70	...	...
" " Duplex " " Lift Cover	.84	1.68	...	...
" " " " with 1/4" Brass Nipple	.56	...	...	...
" " " " For Pilot Lamp Rec. with Jewel	1.40	...	...	...
Iron Vaporproof with Operating Mechanism	2.45	4.20	...	...
Brass "Blank Cover Sheet Steel"	3.50	8.05	...	...
"Cast"	.35	.70	1.05	1.40
Porcelain Cover with Holes	.28	...	...	...

## COMBINATION COVERS FOR FS SERIES

2 Gang for One Switch and one Syle. or Duplex Receptacle	\$ .70
2 " " " " Bull's Eye with Jewel	1.75
2 " " " " One lift cover Receptacle	1.05

## RECEPTACLES &amp; PLUGS

Type	3 Pole, 250 Volt D. C.	400 Volt A. C. Style 1	60 Amp.	60 Amp.
Crouse-Hinds or Similar	15 Amp. 1/4"	30 Amp. 1"	1 1/4"	1 1/2"
OEE Receptacle	\$10.20	\$10.35	\$10.45	...
OE	10.10	10.20	10.35	...
AJA	...	\$20.80	\$20.95	\$22.55
AJB	...	19.95	20.10	22.20
CP Watertight Plugs	9.70	9.70	9.70	15.45

## G &amp; H WITHOUT ADJUSTABLE BAR

Type	5 Amp.	1"	10 Amp.	1"
Crouse-Hinds or Similar	1/4"	3/8"	1/2"	3/4"
G	\$ .56	\$ .70	\$ 1.05	\$ .70
GL	.63	.77	1.12	.77
GLA-GT	.84	.98	1.33	.98
GTA-GX-GXA	1.05	1.19	1.68	1.19
H	.42	.56	.91	.56
HA	.49	.63	.98	.63
HH	.56	.70	1.05	.70
HHC	.84	.98	1.33	.98
HLA	.63	.77	1.12	.77

Type	5 Amp.	1"	10 Amp.	1"
Crouse-Hinds or Similar	1/4"	3/8"	1/2"	3/4"
G	\$ .90	\$ 1.05	\$ 1.40	\$ 1.05
GL	1.05	1.19	1.61	1.19
GLA-GT	1.26	1.40	1.82	1.40
GTA-GX-GXA	1.60	1.68	2.24	1.68
H	.84	.91	1.26	.91
HA	.91	.98	1.40	.98
HH	.98	1.05	1.40	1.05
HHC	1.26	1.40	1.82	1.40
HLA	1.05	1.19	1.61	1.19

## G &amp; H WITH ADJUSTABLE BAR

Type	5 Amp.	1"	10 Amp.	1"
Crouse-Hinds or Similar	1/4"	3/8"	1/2"	3/4"
G	\$ .77	\$ .91	\$ 1.26	\$ .91
GL	.84	.98	1.33	.98
GLA-GT	1.05	1.19	1.54	1.19
GTA-GX	1.26	1.40	1.89	1.40
GXA	1.50	1.71	2.17	1.71
H	.63	.77	1.12	.77
HA	.70	.84	1.19	.84
HH	.77	.91	1.26	.91
HHC	1.05	1.19	1.54	1.19
HLA	.84	.98	1.33	.98

Type	5 Amp.	10 Amp.	20 Amp.	1"
Crouse-Hinds or Similar	1/4"	3/8"	1/2"	3/4"
G	\$ 1.26	\$ 1.33	\$ 1.68	\$ 1.33
GL	1.33	1.50	1.89	1.50
GLA-GT	1.54	1.68	2.10	1.68
GTA-GX	1.75	1.96	2.52	1.96
GXA	1.96	2.24	2.90	2.24
H	1.12	1.19	1.54	1.19
HA	1.19	1.26	1.68	1.26
HH	1.26	1.33	1.68	1.33
HHC	1.54	1.68	2.10	1.68
HLA	1.33	1.50	1.89	1.50

## COVERS FOR G &amp; H SERIES

Description	For G & H Fittings Without Adjustable Bar	For G & H Fittings With Adjustable Bar
Porcelain Cover with Wire Holes	5 Amp. 10 Amp. 20 Amp.	5 Amp. 10 Amp. 20 Amp.
Blank Sheet Steel Cover	\$ .28 \$ .35 \$ .56	\$ .21 \$ .28 \$ .42
"Cast"	.35 .42 .56	.28 .35 .42
Sheet Steel with 1/4" Brass Nipple	.35 .42 .56	.28 .35 .42
" " " " with 3/8" " "	.42 .49 .56	.35 .42 .56
" " " " with 1/2" " "	.50 .56 .63	.42 .56 .63
Receptacle Covers No Shadeholder	.56 .63 .70	.50 .56 .63
"With"	.70 .70 .70	...

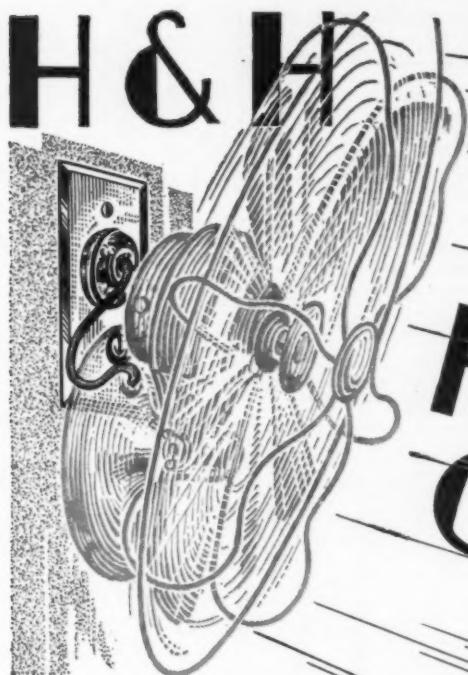
## DEVICES FOR G &amp; H SERIES

Lamp Receptacles one piece with or without Shadeholder Groove	\$ .35
" " " " two " " without	.70
Cord Rosette Porcelain	.63
" " Composition	.56

## J &amp; K SERIES WEATHERPROOF

	1/4"	3/8"	1"
J	\$ .84	\$ 1.05	\$ 1.50
JA-JB-JU	.98	1.19	1.61
JL	1.19	1.33	1.80
JK	1.33	1.50	1.80
JT	1.50	1.61	1.82
K	.70	.91	1.33
KA-KB-KC-KD	.84	1.05	1.50





# FAN HANGER OUTLET

*Gives Speed,  
Strength and Beauty  
— to your Job*

The **SPEED** of the simplest, easiest-to-install fan hanger. Fits in STANDARD 4"-square outlet box.

The **STRENGTH** of a 4-point suspension capable of supporting a weight many times that of the fan.

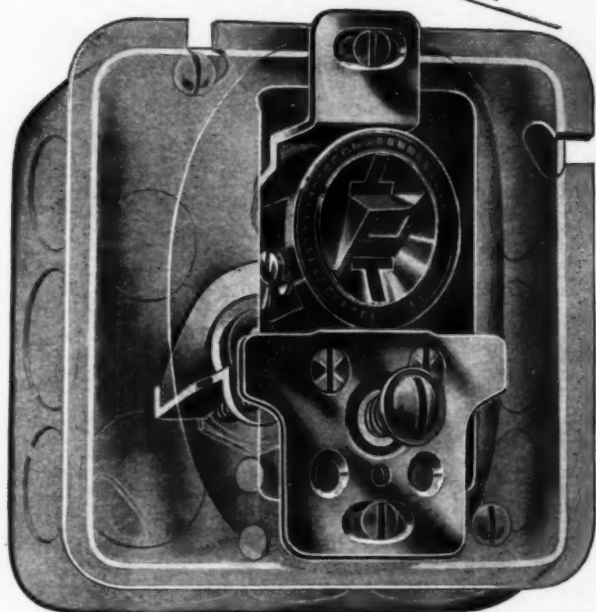
The **BEAUTY** of an all-BAKELITE Receptacle, with finding grooves to guide the plug prongs into the double-contact jaws. Brass plate completes this attractive unit which makes such a quick appeal to your customers.

For you the price is extremely attractive; installation-cost surprisingly low. . .

**For Stud Mounting—No. 7751:** Twist hickey of hanger outlet firmly on stud of box. Insert long holding screws into hickey; fasten to box cover; put on plate; insert fan screw.

**For Clamp Mounting:** No. 7750 includes clamp illustrated at right. Two fastening screws go in mounting plate and upturned lugs hold clamp firmly against box cover.

Complete data-sheet for the asking.



*At right — Clamp  
for clamp mounting*

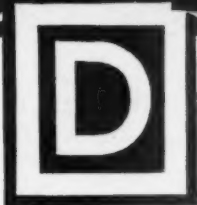
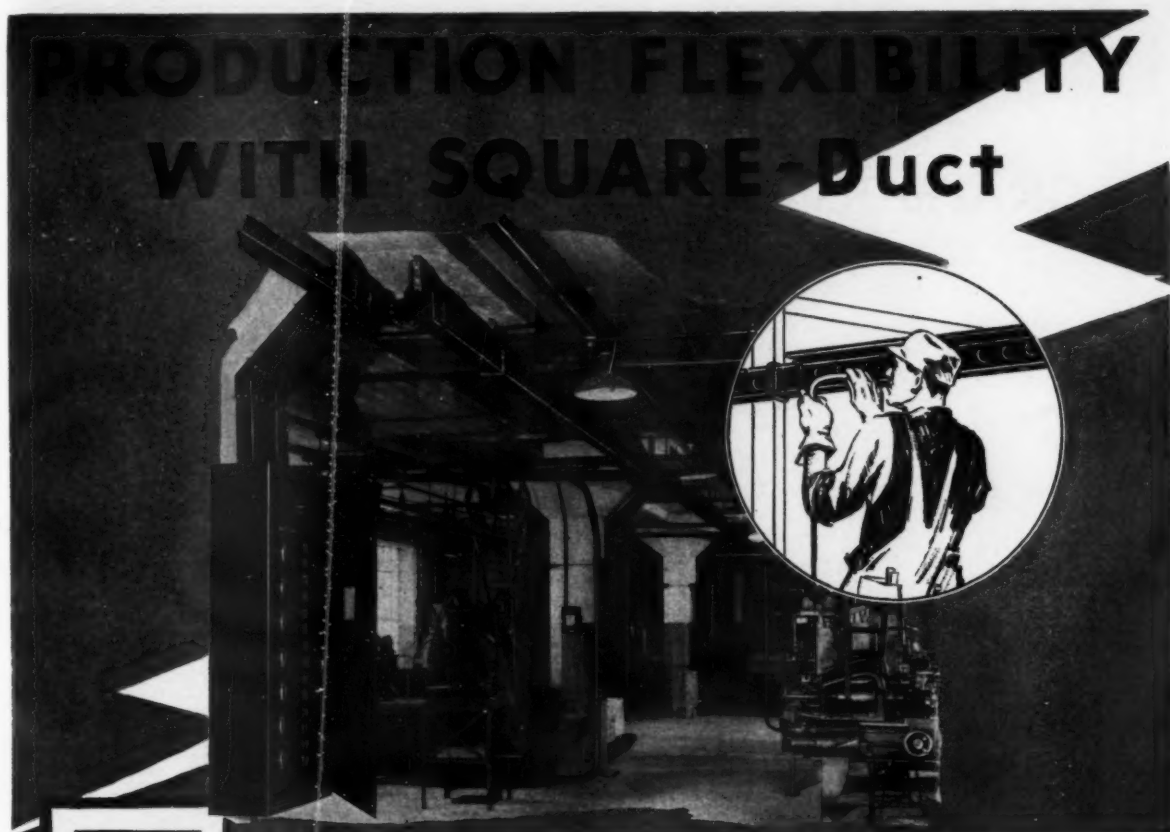
*Specify* No. 7751-Stud Type  
No. 7750-Clamp Type



## HART & HEGEMAN DIVISION

THE ARROW-HART & HEGEMAN ELECTRIC CO.

HARTFORD, CONN. MAKERS OF ELECTRIC SWITCHES SINCE 1890



New machinery is installed and installed machines or whole departments shifted with little cost and low production loss in the plant equipped with SQUARE-Duct, the rigid suspension method for wiring.

SQUARE-Duct accommodates a number of wires or cables in a single sturdy, steel trough made in convenient lengths and various fittings to meet all types of installation conditions. Its closely spaced knockout holes permit "tapping in" at any point. Its hinged cover gives immediate access to every foot of wire.

SQUARE-Duct is manufactured in two sizes: 2½

inches by 2½ inches for lighting circuits and short extensions, and 4 inches by 4 inches for power extensions and larger wires. The two sizes may be combined in a single system.

When utilized with the new SQUARE D Safety Distribution Panelboard, production flexibility is raised to a new degree, for the installation of new circuits or the changing of old is greatly simplified.

Write for the SQUARE-Duct bulletin illustrating its use and application; Safety Panelboard bulletins will also be sent on request. Just address the nearest SQUARE D branch office or write directly to the SQUARE D COMPANY, DETROIT, MICHIGAN.

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DIAMOND ELECTRICAL MAN-  
UFACTURING COMPANY, LTD.  
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SQUARE D COMPANY, CANADA,  
LTD., WALKERVILLE, ONTARIO  
Toronto Montreal

**SQUARE D**  
COMPANY  
DETROIT, U.S.A.



ELECTRICAL EQUIPMENT

Factories at:  
DETROIT, MICHIGAN; MILWAU-  
KEE, WISCONSIN; AND PERU,  
INDIANA

BRANCHES IN ALL PRINCIPAL  
CITIES

## GRAYBAR'S CREED AS A DISTRIBUTOR

### *The Graybar Electric Company believes:*

- (1) That it performs an economic service for the wholesale *buyer* of electrical goods by maintaining adequate, well-selected, and convenient stocks of quality materials thus relieving him of the burdens of handling, storage, investment, and obsolescence.
- (2) That likewise it performs an economic service for the *maker* of electrical goods by providing immediate nation-wide distribution without duplication of warehousing, selling, and credit operations; and,
- (3) That in performing these services it lowers the cost of distribution to the benefit of the entire Industry; and,
- (4) That, consequently, it has a recognized place in the economic structure of the Industry and that it need not and should not engage in any activity detrimental to the Industry;
- (5) That finally, since its own success will follow the success of the Industry, it should endeavor in its publicity to bring about a greater public appreciation of Electricity; and that it should pursue and encourage sound merchandising and credit practices and in every way possible contribute to the advancement of the Electrical Industry. **Graybar**

GRAYBAR ELECTRIC COMPANY · DISTRIBUTORS OF 60,000  
ELECTRICAL ITEMS THROUGH 77 DISTRIBUTING HOUSES



# What you can do with "Diamond H" Remote Control Switches



## CONTROLLED LIGHT I

Here is an outstanding but typical job in which "Diamond H" Remote Control Switches of different kinds are used to control all of the lighting in the First Church of Christ, Scientist, in Boston, Mass., one of the largest churches in the world.

At the right the two panels show Type E Relays. These are used for all the corridor and stairway lighting. At the left (lower) the 3 pole Type F switches control the main auditorium which seats 6000. (Upper) left shows a 3 pole Type F, and Type E relays used for the organ blower. Momentary contact switches for controlling these switches are also located on these panels. "Diamond H" remote control switches are dependable and present a fine appearance.

Specialize in remote control. Applications are varied and profitable.



*Bulletin No. 10 illustrates the different types we make with wiring plans and applications. A copy sent on request.*

New York  
Boston  
Chicago  
Detroit  
Dallas

THE HART MANUFACTURING CO.  
HARTFORD, CONN.

Minneapolis  
Cleveland  
Philadelphia  
San Francisco  
Toronto, Can.

# DIAMOND H SWITCHES

Lamp Receptacle S. H. Groove.....	\$.63
No S. H. Groove.....	.66
Plug Receptacle 10 & 15 Amp.....	.70
"    20    ".....	.91
"    10    "    3-wire.....	.98
Cord Rosette.....	.49
Blank Cast Cover.....	.42

Crouse-Hinds or Similar

**Prices include Globe & Guard**

		Form 75		
		16"	14"	1"
V-VA & VDA	as above	\$5.85	\$5.92	\$6.00
VC & VL	as	5.98	6.11	6.24
VE-VG & VT	as	6.17	6.30	6.56
VX	as	6.30	6.53	6.70
VF	as	6.37	6.50	
VD & VJ	as	6.70	6.87	7.00
		Form 200		
		16"	14"	1"
V-VA & VDA	as above	\$7.02	\$7.09	\$7.16
VC & VL	as	7.15	7.28	7.35
VE-VG & VT	as	7.28	7.50	7.63
VX	as	7.41	7.67	7.87
VF	as	7.47	7.60	
VD & VI	as	7.67	7.80	7.93

## Price

	Form	Price	Form	Price
	75	\$1.12	200	\$1.12
Globes only, clear glass				
"    opal		1.54		2.38
"    green, bl. gran.		1.84		3.20
"    "    ruby		3.30		4.06
Guards Cast Aluminum		2.52		3.15
Half Shades		1.68		2.45
Receptacle with Gasket		.56		.91
Reflector Holders Cast Aluminum		1.05		1.26
Adaptor		1.05		1.26

(Page 56, Crouse Hinds Cat. 2200 or Similar)

Pendant or Bracket Fixture with Recept. Globe and Guard Form	75....	\$7.93
	200....	8.84

**STANDARD TYPES**  
**"Kondu" Crouse-Hinds "Appleton" "Adaptilets" or Similar**

Types	Without Covers	1/4"	3/8"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
A.....	\$0.46	\$0.62	\$0.84	\$1.26	\$1.61	\$3.15	\$5.65	\$8.10	\$10.60
B.....	.53	.70	.95	1.47	1.96	3.85	6.65	8.10	10.60
BE.....	.95	1.23	1.79	2.74	3.64	6.30	11.70	13.30	16.40
C.....	.74	.94	1.33	2.03	2.66	5.11	8.55	11.30	14.30
CB.....	1.04	1.34	1.86	2.80	3.85	6.16	9.90	14.30	18.30
D.....	.74	.94	1.29	2.03	2.66	5.11	8.55	11.30	14.30
E.....	.53	.67	.94	1.48	1.96	3.85	6.65	8.00	10.00
L-B-LF-LI-LR.....	.81	.98	1.40	2.17	2.94	5.18	8.80	11.50	14.80
SE.....	.81	1.09	1.71	2.66	3.99	7.00	11.85	14.40	18.30
T-TL-TR.....	1.04	1.34	1.85	2.80	3.85	6.16	9.90	14.40	18.30
TB.....	1.1	1.82	2.68	3.64	5.18	8.00	10.10	13.20	16.30
X & UB.....	.91	1.12	1.55	2.52	3.29	6.00	10.00	13.00	16.00
X.....	1.33	1.82	2.48	3.43	4.48	8.33	12.35	19.15	23.15
XB.....	2.03	2.52	3.29	.....	.....	.....	.....	.....	.....
LB-LB-LR-LU.....	1.26	1.68	2.31	.....	.....	.....	.....	.....	.....

	1 1/2"	1 3/4"	1"	1 1/4"
H Couplings.....	\$ .32	\$ .45	\$ .83	\$1.11
KO Box Connector.....	.20	.29	.67	1.34
NO " ".....	.24	.31	.56	.84
SCA Cable Connector.....	.13	.17	.24	.....
SLP Short Elbow.....	.39	.62	.83	1.00
KOL Box Connector.....	.43	.57	.98	1.54
KOR Reducer.....	.68	.....	.....	.....
	1 1/2"	2"	2 1/2"	3"
H Couplings.....	\$1.54	\$3.21	\$4.00	\$6.37
KO Box Connector.....	.....	.....	.....	.....
NO " ".....	1.18	2.40	3.28	4.30
SCA Cable Connector.....	.....	.....	.....	.....
SLP Short Elbow.....	2.06	.....	.....	.....
KOL Box Connector.....	2.07	4.20	.....	.....
KOR Reducer.....	.....	.....	.....	.....

Blank Metal.....	1 1/2"	3/4"	5/8"	1 1/4"
Rubber Gasket.....	9.12	8.16	8.32	8.48
Met. 1/4 Nip.....	.14	.14	.22	.22
" 3/4 ".....	.28	.35	.49	.61
" 1 1/2 ".....	.32	.40	.54	.67
" 2 ".....	.35	.42	.56	.72
" 2 1/2 ".....	.42	.49	.63	.79
Porcelain with Holes.....	.21	.24	.35	.40
Metal Cord Grip.....	.28	.35	.49	.58

		1½"	2"	2½"	3"
Blank Metal.....		\$ .63	\$ .79	\$1.05	\$1.05
Rubber Gasket.....		.28	.56	.84	.84
Metal ¼ Nip.....		.82			
" ¾ ".....		.86			
" 1½ ".....		.88			
" 2 ".....		.88			
Porcelain with Hole.....		.69		\$ 1.12	1.12
Metal, Cord Grip.....		* * *	* * *	* * *	

Lamp Recept., without Shade Holder Groove PR.....		3/8"	\$ .35	3/4"	\$ .42	1"	\$ .49
" "			.42		.49		.56
Porcelain for Weatherproof Socket WP2.....			.68				
Polarity Plug Receptacle 10 Amp. P.....			.66		.63		.70
Duplex PD.....					.70		.78
Snap Switch 5 Amp. 125 Volt Non Indicating....			\$ .70	Sglt. Pole	Dble. Pole	3 Pole	\$1.36
" "			.77				
" "			1.12		\$1.47		1.47
" "			1.26		1.68		

**Any Make**

Type	1 Gang			2 Gang		
	$\frac{1}{4}$ "	$\frac{1}{2}$ "	1"	$\frac{1}{4}$ "	$\frac{1}{2}$ "	1"
FSE-FSB.....	\$1.05	\$1.20	\$1.40	\$1.82	\$2.03	\$2.24
FSC-L & R.....	1.33	1.61	2.03	2.10	2.31	2.66
FST.....	1.75	2.31	2.73	.....	.....	.....
FSU.....	1.26	1.61	2.03	.....	.....	.....
FSD.....	1.75	2.31	2.73	2.38	2.73	3.08

Type	3 Gang			4 Gang		
	$\frac{1}{4}$ "	$\frac{1}{2}$ "	1"	$\frac{1}{4}$ "	$\frac{1}{2}$ "	1"
FSE-FSB.....	.....	\$2.73	\$3.01	.....	\$3.30	\$3.64
FSC-L & R.....	.....	3.08	3.36	.....	3.71	3.96
FST.....	.....	.....	.....	.....	.....	.....
FSU.....	.....	.....	.....	.....	.....	.....
FSD.....	\$3.22	3.57	3.85	\$4.27	.....	.....

	One Gang	2 Gang
Blank Metal Plate.....	\$.37	\$.70
Receptacle Plate.....	.28	.38
Toggle or Push Button Switch Plate.....	.38	..

Type	5 Amp.			10 Amp.			20 Amp.		
	1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"
OA	\$0.63	\$0.64	\$0.77	\$1.05	\$1.33	\$1.05	\$1.19	\$1.19	\$1.61
OC	.77	1.05	.91	1.26	1.68	1.19	1.40	1.40	1.96
OCB	1.19	1.54	1.33	1.75	2.24	1.61	1.96	1.96	2.52
OE	.56	.77	.70	.98	1.26	.98	1.12	1.12	1.47
OEB	.91	1.12	1.05	1.33	1.75	1.33	1.54	1.54	2.10
OL	.91	1.12	1.05	1.33	1.75	1.33	1.54	1.54	2.10
OLB	1.19	1.54	1.33	1.75	2.24	1.61	1.96	1.96	2.52
OT	1.19	1.54	1.33	1.75	2.24	1.61	1.96	1.96	2.52
OTB	1.54	1.96	1.68	2.10	2.80	1.96	2.38	2.38	3.22
QUE	.71	.91	.84	1.05	1.68	1.05	1.47	1.47	2.52
QUB	1.19	1.54	1.33	1.75	2.24	1.61	1.96	1.96	2.52
OX	1.54	1.96	1.68	2.10	2.80	1.96	2.38	2.38	3.22
OXB	1.80	2.31	2.03	2.52	3.36	2.31	2.67	2.67	3.72

	5	10	20
	Amp.	Amp.	Amp.
Blank Metal Cover, Round.....	\$ .21	\$ .28	\$ .36
Porcelain Cover, Round with holes.....	.21	.35	.49
Metal Cover with ¼ or ½ Cord Grip.....	.35	.42	.50
Blank Metal Cover with male or female nipple.....	.42	.49	.56
" "	.42	.49	.56
" "	.49	.56	.63
" "	.56	.63	.71
Rubber Gaskets.....	.14	.14	.14
Lump Recipients.....	.43	.43	.43
Composition T Slot.....	.84	.84	.84

[illegible]

BRANCH TYPE		
Series 48		
Description	G.E., Steel City or T & B Numbers	Price Each
Branch Body Rectangular for $\frac{1}{2}$ & $\frac{3}{4}$ " Conduit....	SP-48A1	1.10
Cover Metal Flat Closed.....	SP-48C1	1.10
" " " with $\frac{1}{2}$ " Knockout.....	SP-48C6	1.10
" " " Pendant Type with $\frac{1}{2}$ " Bushing.....	SP-48C8	1.10
" " " Pendant Type with $\frac{3}{4}$ " Bushing.....	SP-48C11	1.30
" " " with $\frac{1}{2}$ " Male or Female Nipple.....	SP-48C22 & 23	1.30
" " " with $\frac{3}{4}$ " Male or Female Nipple.....	SP-48C24 & 25	1.30
Cover Porcelain with one or two wire Holes.....	SP-48C75 & 76	1.10
" " " three or four wire Holes.....	SP-48C77 & 78	1.10

### FITTINGS, SPRAGULETS, WIRELETS OR T & B—Continued

### SHALLOW TYPE Series 14

Description	G.E., Steel City or T & B Numbers	Price Each
Body Octagonal Shape for $\frac{1}{8}$ " or $\frac{1}{4}$ " Conduit.....	SP-14241	\$3.95
Cover Metal Flat Closed.....	SP-14C1	.10
" Raised with $\frac{1}{8}$ " Knockout.....	SP-14C7	.10
Cover Metal Flat Pendant with $\frac{1}{4}$ " Bushing.....	SP-14C8	.12
" " " "	SP-14C11	.16
" " " with $\frac{1}{8}$ or $\frac{1}{4}$ " Male Nip.....	SP-14C22-34	.30
" " " For all surface Mounted Devices	P-3-Cables	.15
" Raised for Sign Restraints.....	SP-14C31-34-35-36	.15
" Flat for all Flat Devices.....	SP-14C39	.30
" Porcelain with one or two holes.....	SP-14C75 & 76	.15
" " Three or Four holes.....	SP-14C77 & 78	.15

**DEEP TYPE**  
Series 34

Description	G. E., Steel City or T & B Numbers	Price Each
Body Deep Octagonal Shape $3\frac{1}{2}$ " & $3\frac{3}{4}$ "	SP-4461	\$ 4.45
Cover Metal Blank Flat	SP-4481	.14
Cover Metal For Push Button Switch	SP-4482 & 3	.14
" " Single Receptacle	SP-4485	.14
" " Standard Duplex Receptacle	SP-4487	.14
For GE 80 Amp. Polarized Plug Recep.	SP-4483	.18
" GE Tumbler Switch	SP-4484	.16
" Hubblel and H&H Tumbler Switches.	SP-4415	.16

## COUPLINGS

SP-1410 Complete Coupling for $\frac{1}{2}$ " Conduit.....	Price
SP-1420 " " " $\frac{3}{4}$ " " .....	\$ .15
	.25

### FITTINGS, ENTRANCE OR SERVICE

## "ADAPT"

Ent. Ells with Cov. Ser. 1100.....	14 <sup>5</sup> / <sub>8</sub>	14 <sup>5</sup> / <sub>8</sub>	14 <sup>5</sup> / <sub>8</sub>	14 <sup>5</sup> / <sub>8</sub>
" Fitt. with Cov. Ser. 2700 .....	\$ .45	\$ .50	\$ .60	\$1.05
Angle Ent. Fitt. with Cover Ser. 2700 .....	.50	.55	.65	1.20
Signal Ent. Caps No. 2810-2811 .....	.75	.80		
Ent. Ells with Cov. Ser. 1100.....	14 <sup>5</sup> / <sub>8</sub>		24 <sup>5</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>8</sub>
" Fitt. with Cov. Ser. 2700 .....	\$1.55	\$3.00	\$6.25	\$7.65
Angle Ent. Fitt. with Cov. Ser. 2700 .....	1.85	3.00	7.00	8.40
Signal Ent. Caps No. 2810-2811 .....	1.00	1.00	1.00	1.00

**"APPLETON"**

	1 1/2"	1 3/4"	1"	1 1/4"
FEB Elbow with Cov. 1700 & 1900....	\$4.50	\$6.50	\$7.50	\$11.70
FB Elbow with Cov. 1713 to 16.....	.35	.50	.60	.....
FC End Fitt. with Cov. 1723-33-43....	.20	.25	.30	.....
AY Angle Fitt. 1950 to 54.....	.50	.55	.70	1.85
LAY End Fitt. with Cov. 1790 to 94....	.45	.50	.60	1.10
MF Reversible Fitt. 3200-3230.....	.45	.55	.75	1.30
	1 1/2"	2"	2 1/2"	3"
FEB Elbow with Cov. 1700 & 1900....	\$11.90	\$22.25	\$71.00	\$90.00
FB Elbow with Cov. 1713 to 16.....	.....	.....	.....	.....
FC End Fitt. with Cov. 1723-33-43....	.....	.....	.....	.....
AY Angle Fitt. 1950 to 54.....	2.25	.....	.....	.....
LAY End Fitt. with Cov. 1790 to 94....	1.75	.....	.....	.....

## "BEND HICKS"

Bend Hicks Galvanized.....	1½"	¾"	1"	1½"
	\$ .50	\$ .60	\$ .65	\$1.75
Bend Hicks Galvanized.....	1½"	2"	2½"	3"
	\$2.15	\$4.10	\$6.60	\$8.25

### "CAP-SWIVEL-LET"

	1/4"	3/8"	1"	1 1/2"	1 3/4"	2"
"AA" Inside Work #1010 to 1064.....	\$0.20	\$0.25	\$0.30	\$0.35	\$0.35	\$1.30
"BW" Threadless Fitt. 4112-4134.....	.45	.50	.75			
"BW" Threaded Fitt. 2112-2124.....	.55	.45				
"FW" Outside Work 1412-1464.....	.40	.50	.65	1.05	1.80	3.00
"LB" Service Entrance 3100-3180.....		.50	.55	.65		
Type "AA" for Nipple 1/4" Long.....	\$0.20	\$0.20	\$0.15	Long.....		
Type "BXA" from 1600 to 1613.....						.30
From 1614-1634.....			.35			

**"CONDULETS"—Form 6**

F Type Ent. Fitt. with Porc. Cov.....	1½"	¾"	1"	1¼"
LB Type Ent. Fitt. with Metal Cov....	\$4.40	\$4.45	\$6.00	\$6.95
	.45	.50	.60	1.15
F Type Ent. Fitt. with Porc. Cov.....	1½"	3"	2½"	3"
LB Type Ent. Fitt. with Metal Cov....	\$1.60	\$2.85	.....	.....
	1.40	2.45	.....	.....

## "ELECTROLETS"

FB Angle Fitt. with Cov. 713-83.....	14 <sup>6</sup>	14 <sup>6</sup>	1 <sup>0</sup>	114 <sup>6</sup>
KA End Fitt. with Cov. 1013 to 43.....	\$ .45	\$ .55	\$ .70	\$1.10
SLB Elbow Fitt. with Cov. 1 to 4.....	..20	..20	..25	..18
Y Capped Elbow Y1 to 5.....	..50	..55	..60	1.70
FB Angle Fitt. with Cov. 713-83.....	114 <sup>6</sup>	2 <sup>0</sup>	214 <sup>6</sup>	3 <sup>0</sup>
KA End Fitt. with Cov. 1013 to 43.....	\$1.85	\$3.00	\$6.60	\$8.50
SLB Elbow Fitt. with Cov. 1 to 4.....	.....	.....	.....	.....
Y Capped Elbow Y1 to 5.....	2.30	.....	.....	.....

## "GENERAL ELECTRIC"

With Covers		3½"	3¾"	1"	1¼"
Ent. Caps Series	1525 to 1534	\$ .45	\$ .55	\$ .70	\$ .95
Capped Elbow Series	1470 to 1473	.50	.60	.....	.....
Capped Elbow Series	1480 to 1484	.55	.70	1.85	.....
Insulets Series	1610 to 1612	..	.25	.30	.....
Insulets Angle Series	1640 to 1642	.30	.40	.50	.....
Entrance Ells	1490 to 1495	.40	.45	.55	1.00
With Covers		1¼"	2"		
Ent. Caps Series	1525 to 1532	\$1.80	\$2.75	\$5.90	\$10.90
Capped Elbow Series	1470 to 1472	.....	.....	.....	.....
Capped Elbow Series	1480 to 1484	2.25	.....	.....	.....
Insulets Series	1610 to 1612	.....	.....	.....	.....
Insulets Angle Series	1640 to 1642	.....	.....	.....	.....
Entrance Ells	1490 to 1495	1.55	3.00	8.35	10.50

**GEE-VEE**

F Service Cap Series	4000.....	45	50	70	14
B " " " "	16000.....	45	50	70	1.00
F Pipe " " " "	1000-1310.....	40	50	75	1.75
B " " " "	2000 & 2100.....	40	45	65	.75
FB Universal " "	3000.....	1.00	1.25	1.65	2.75
Weathercap " "	40123.....	.30	.30	.....	.....
Service Elbow " "	19000.....	.45	.50	.80	1.10
Endo Terminal Series	90000.....	.15	.20	.25	1.05
Endo with Male Thread Series	70000.....	.25	.85	.50	.....
Endo for Armored Cable	11143.....	.....	.....	.....	.....
No. 14-2 or No. 12-3 Wire.....	.....	.30	.....	.....	.....
Endo for Armored Cable.....	.....	.....	.....	.....	.....
Series 30000, Nos. 14 and 12 wire, \$15; No. 10 wire, \$30; No. 6 wire, \$45	.....	.....	.....	.....	.....
SEG Service Elbow Series. 400-44, \$4.75; 470-141, \$7.00; 141-15, \$1.15; 154-141, \$4.75	.....	.....	.....	.....	.....

## "TAPLETS"

	$\frac{1}{4}$ "	$\frac{3}{8}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{2}$ "	3"
AR End Fitt. with Bushing.....	\$4.40	\$5.75	\$7.00	\$9.00	\$1.30	\$1.70	\$2.30	\$5.60
BF Angle Fitt. with Covers.....	3.55	.55	1.20	.....	.....	.....	.....	.....
FA End Fitt. with Covers.....	15	20	.....	.....	.....	.....	.....	.....
FB End Fitt. with Covers.....	30	45	.....	.....	.....	.....	.....	.....
FF Service Fitt. with Covers.....	40	45	65	1.00	1.70	2.95	6.25	7.05
FS Service Fitt. with Covers.....	85	1.05	1.50	1.90	3.05	4.90	11.50	12.65
SE Service Elbow with Covers.....	95	1.10	1.25	1.90	2.50	4.20	8.45	9.80

**T & B**

Ent. Cap 1525-32 with Cover.....	1 1/2"	1 1/2"	1"	1 1/4"
Capped Elbow 1470-84 with Cover.....	\$ .40	\$ .50	\$ .65	\$1.00
Insulets 1810-11-12 with Cover.....	.50	.60	.70	1.95
Angle Insulets 1640-1-2 with Cover.....	.15	.20	.25	
Angle Insulets 1640-1-2 with Cover.....	.30	.45	.60	
Cable Insulets 2000 with Cover.....	.15			
Ent. Cap 1525-32 with Cover.....	1 1/2"	2"	2 1/2"	3"
Capped Elbow 1470-84 with Cover.....	\$1.70	\$2.95	\$7.55	\$0.25
Insulets 1810-11-12 with Cover.....	2.30			
Angle Insulets 1640-1-2 with Cover.....				
Angle Insulets 1640-1-2 with Cover.....				
Cable Insulets 2000 with Cover.....				

"V. V."

	3 <sup>4</sup>	3 <sup>5</sup>	1 <sup>4</sup>	1 <sup>5</sup>	1 <sup>4</sup> 3 <sup>4</sup>	2 <sup>4</sup>	2 <sup>5</sup>	3 <sup>4</sup>	3 <sup>5</sup>
Type 2 Term. Fitt. with Cov.	\$.60	\$.80	\$.81	.0531	.0532	1.53	8.5		
Type 6 Term. Fitt. with Bush.	.40	.53	.70	.90	1.30	1.70	2.30	5.0	5.0
Type 9 Term. Fitt. with Cov.	.70	1.05	1.40	2.80	4.20	7.0	12.65	13.45	18.45
FC Pipe End Cover	.15	.25	.40	.45	.85	1.15	2.35	3.80	5.35
FC Pipe End Porc. Cover.	.15	.25	.25						
FCBX with Cover	.15								
FC with Cast Cover	.40	.55	.65	1.15	1.25	2.45			
Y Bend Hick.	.50	.60	.65	1.75	2.15	4.10			

## FITTINGS, "ADAPTI"

### ROUND "ADAPTI" BOXES

Series Numbers	Style	1½"	1"	1½"	1"	1½"	2"
No. 2900 to 2903 ..	Back Out	\$ .40	\$ .46	\$ .60	\$1.05		
No. 3100 to 3105 ..	Side "	.40	.46	.60	1.05	\$1.80	\$2.40
No. 3100T & 3101T							
Threadless ..	" "	.48	.55				
No. 3170 to 3175 ..	" "	.46	.53	.66	1.15	1.85	2.40
No. 3200 to 3205 ..	2 "	.48	.55	.73	1.25	3.11	2.75
No. 3200T & 3201T							
Threadless ..	" "	.60	.67				
No. 3270 to 3275 ..	" "	.60	.67	.98	1.40	2.25	2.85
No. 32170 to 32175 ..	" "	.53	.60	.85	1.34	2.20	2.80
No. 3300 to 3305 ..	3 "	.64	.75	.98	1.60	2.65	3.00
No. 3300T to 3305T							
Threadless ..	" "	.80	.92				
No. 33170 to 33175 ..	" "	.70	.82	1.05	1.70	2.70	3.05
No. 3400 to 3405 ..	" "	.80	1.00	1.20	1.85	2.85	3.30
No. 3500 to 3505 ..	2 "	.58	.60	.73	1.00	2.25	3.00
No. 3800 to 3805 ..	" "	.60	.80	.40		2.25	3.00
No. 4000 to 4105 ..	2 "	.80	.93	1.05	1.75	2.85	3.35
No. 4800 to 5005 ..	4 "	.93	1.05	1.32	1.90	3.30	4.35



Series No.	Description	1/2"	3/4"	1"
500-501-502	Base Only	\$ .27	\$ .27	\$ .54
500X-501X	Extension Ring	.27	.27	.40
501A	Base Concealed to Expd.	.66	.66	.66
0500	" with Tapped Boss	.33	.33	.....
510 to 512	Base	.40	.40	.80
520 to 522	"	.27	.27	.....
30 to 35	Metal Side Plates	.14	.14	.23
40 to 42	Insulated Side Plates	.16	.16	.33
50 to 54	Arm'd. Flex. Side Plates	.33	.40	.53
60 to 65	Angle Outlet	.16	.22	.42
70 to 75	Elbow Outlet	.22	.29	.50
90 to 93	Connecting Outlet	.26	.....	.33
100 & 101	Straight for No. 500 Base	.16	.22	.....
110 to 113	" " No. 501 "	.26	.33	.42
120 to 125	" " No. 502 "	.46	.53	.66
130 to 135	" " No. 503 "	1.05	1.32	1.60
140 to 145	" " No. 504 "	2.65	3.05	3.45
300 & 301	Threadless Outlet	.20	.25	.....
310 & 311	"	.33	.40	.....
Series No.	Description	1 1/2"	1 3/4"	2"
500-501-502	Base Only	\$ .54	\$1.08	\$1.08
500X-501X	Extension Ring	.40	.....	.....
501A	Base Concealed to Expd.	.66	.....	.....
0500	" with Tapped Boss	.....	.....	.....
510 to 512	Base	.80	1.00	1.60
520 to 522	"	.52	1.08	1.08
30 to 35	Metal Side Plates	.30	.38	.38
40 to 42	Insulated Side Plates	.33	.66	.66
50 to 54	Arm'd. Flex. Side Plates	.66	.....	.....
60 to 65	Angle Outlet	.48	.92	1.05
70 to 75	Elbow Outlet	.65	1.00	1.12
90 to 93	Connecting Outlet	.....	.40	.46
100 & 101	Straight for No. 500 Base	.....	.....	.....
110 to 113	" " No. 501 "	.48	.....	.....
120 to 125	" " No. 502 "	.80	1.02	1.02
130 to 135	" " No. 503 "	1.85	2.10	2.40
140 to 145	" " No. 504 "	3.85	4.25	4.65
300 & 301	Threadless Outlet	.....	.....	.....
310 & 311	"	.....	.....	.....

Numbers	Description	Prices
1	Porcelain One Hole Cover.....	\$ .18
2	Metal For Devices.....	.30
3	Porcelain One Hole Cover.....	.30
4	Porcelain.....	.22
5 & 6	Porcelain with Male or Female Nipple.....	.75
7 & 8	" " " "	.82
9 & 10	Malleable with Male or Female Nipple.....	.80
11 & 12	" " " "	.37

**NOTE:** For "Adapti" Entrance Fittings See Page PL-13.

**Crouse Hinds—Appleton & Similar  
Type GCA**

Fitting No. GCA-12 For 3/4" Conduit Without Soldering Lug.....	Price
" " " -172 " " " with " " .....	\$ .70
	.75

	With Angle Adjustment	1 1/2" One Strap	3/4" Two Straps	1" Three Straps
GCD-12 Fitting without Lug		\$ .80	\$1.55	\$2.50
GCD-173-22-32 with "		.85		

	With	Threaded Plug	Terminal	
GCE-142 For 1 1/2" Conduit & 3/4" Water Pipe			without Lug	..... \$ .80
GCE-242 " " " "			with Lug	..... .90
GCE-342 " " " "			with Lug	..... 1.06

GCE1	For 1/2" Conduit.....	\$0.40
GCE2	" 3/4" ".....	.55
GCE3	" 1" ".....	.70

For Open Ground Wire

GC-91 Cast Brass with No. 4 Lug and One Strap— $\frac{1}{2}$ to 1" Water Pipe	\$ .70
GC-92 Cast Brass with No. 4 Lug and One Strap $\frac{1}{2}$ to 2" Water Pipe.	.75
GC-922 " " " " " " " " " " " " " " " "	1.45

GC101	Water Meter Shunt For $\frac{1}{4}$ to 1" Water Pipe.....	\$1.75
GC102	Water Meter Shunt For $\frac{1}{2}$ to 2" Water Pipe.....	1.80

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Without Screw or Lug.	\$ .10	\$ .13	\$ .20	\$ .24	\$ .31	\$ .46	\$ .84	\$1.10
With Screw & Lug....	.20	.24	.31	.32	.40	.61	1.00	1.25

G. E.	T. & B.	Description	Price
SP-800-05	3670-80	1 1/2" Body Saws 1 1/2" to 2"	\$0.90
SP-810-15	3671-81	1 1/2" " " 1 1/2" to 2"	1.60
SP-820-25	3672-82	1 1/2" " " 1 1/2" to 2"	2.60

SP-900 to 911											
3650 to 3659	1 1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	
	15c	20c	24c	28c	30c	45c	90c	\$1.10	\$2.00	\$2.25	

SP-600	8" Grounding Jumper	\$0.45
SP-601	12" "	.55

For BX or Armored Cable		Size of K. O.	Price Each
Description			
Standard Squeeze Connector	$\frac{1}{2}$ - $\frac{3}{4}$		\$ .00
"	Set Screw Connector $\frac{1}{2}$ - $\frac{3}{4}$		.06
"	Slip In Connector $\frac{1}{2}$ - $\frac{3}{4}$		.06
"	Duplex Connector $\frac{1}{2}$ - $\frac{3}{4}$		.18

STRAIGHT		1	.18
BOX	Squeeze	1	.18
	or	1	.30
CONNECTORS	Tangent	1	.50
	Type	1	.65
		1	.85
			1.25

Type	1 1/4"	1.25
45 DEGREE ANGLE BOX CONNECTOR	Squeeze or Tangent Type	1 1/4" .35 .48 .85 1.00 1.25

	Part	Conduit	
COUPLINGS FOR FLEXIBLE STEEL CONDUIT	1/2"	1/2"	.86
	3/4"	3/4"	.40
	1"	1"	.45
	1 1/2"	1 1/2"	.60
	2"	2"	.75
	1 1/2"	2"	1.00

00	1	00	1.00
00	2	00	1.25
00	3	00	1.60

	For 1/2" Conduit	.40
COUPLINGS FOR	" 3/4" "	.50
RIGID	" 1" "	.60
TO	" 1 1/4" "	.80
FLEXIBLE	" 1 1/2" "	1.00
CONDUIT	" 2" "	1.50

Bushings or Ferrules—Brass.....02

Number	Description	Price
2150-57-60-61	Straps—Fasteners & Bushings.....	\$ .02
2159	Toggle with Wire Loop.....	.03
2176-2180-2154	Set Screw Connector.....	.15
2179-2181	Special Box Connector.....	.10
2155-2156	90 Degree Box Connector.....	.31
412-413	Connector for Ovalflex to Metal Molding.....	.35
9090-9	Squeeze Connector.....	.10

**Standard**

Fitters NOT INCLUDED		Standard		Plain White Only	
Diameter or Width		Depth or Length		Fitter	Price
6" Diameter	5 1/2"	Inches to 6	Inches	3 1/2"	\$ 1.00
8" Diameter	5 1/2"	" " 6 1/2"	" "	4"	1.25
9"	5 7/8"	" " 7 1/2"	" "	4 1/2"	1.35
10"	6"	" " 8"	" "	4 3/4"	1.45
12"	6 1/2"	" " 8 1/2"	" "	4" or 6"	3.25
14"	7 1/2"	" " 10 1/2"	" "	6"	4.50
16"	8"	" " 11 1/2"	" "	6"	5.25
18"	8 1/2"	" " 12"	" "	8"	8.25
20"	10"	" " 10 1/2"	" "	8"	15.00

Fitters NOT INCLUDED		Plain White Only	
8" Diameter	6 1/4"	Inches	\$
9" "	7 1/4"	4"	1.40
10" "	8"	4"	1.75
12" "	8 1/4" & 9"	4"	2.50
14" "	9 1/4" & 11"	6"	3.75
16" "	10" and 12 1/4"	6"	5.25
		6"	6.75

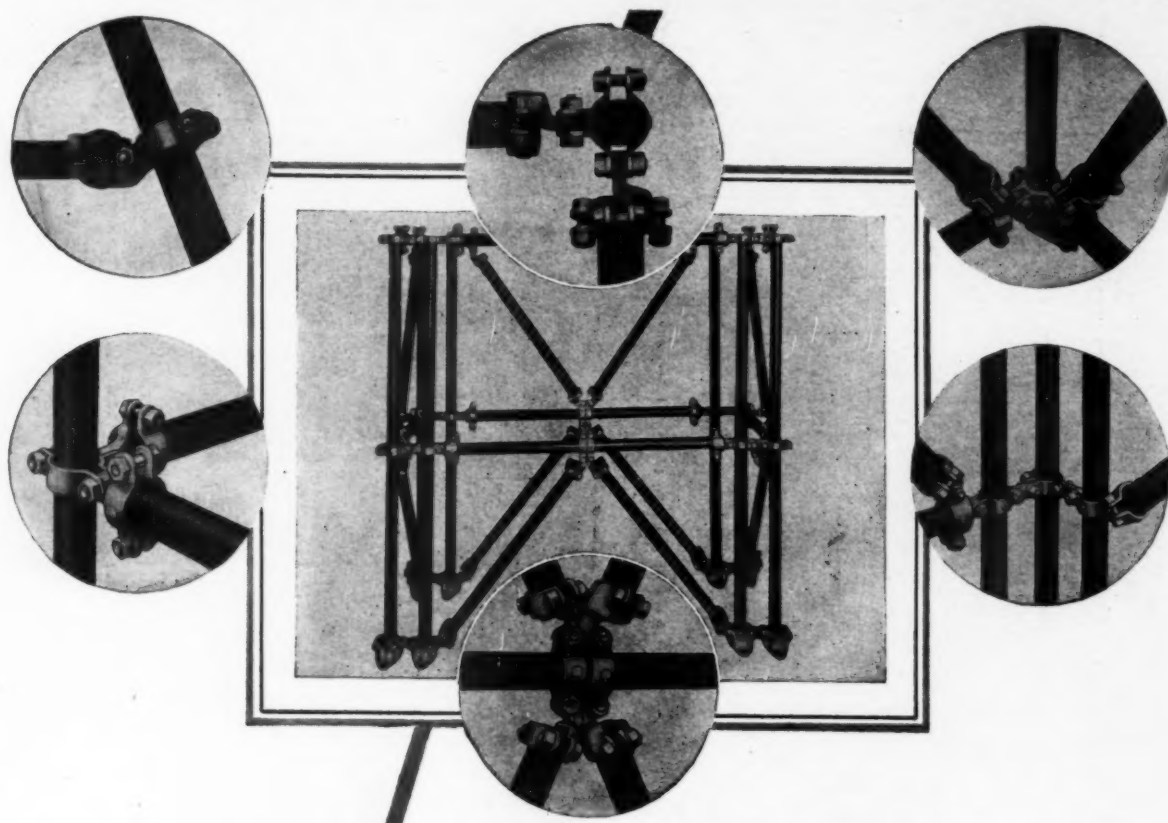
6" Diameter	6 Inches Deep	Opal or C. R. L.
7"	7	\$ .80
8"	8	1.20
10"	10	2.20
12"	12	3.50
14"	14	5.25
16"	16	7.50

Half Shades	4 1/2"	Diam. 6"	Deep 2 1/2"	Fitter.....	\$0.75
Mission Bell Shades	4 1/2"	" 4 1/2"	" 2 1/2"	" .....	.50
" " "	6"	" 4"	" 2 1/2"	" .....	.60
" " "	7"	" 5"	" 2 1/2"	" .....	.80
" " "	8"	" 5"	" 2 1/2"	" .....	1.25

## Lexen

1 Key with each dozen Gauges		Extra Keys 10c each	
Lamp Size	Fits Socket	McGill Luxon Nos.	Price Each
15-25-40 Watt	Brass or W. P.	1420-1420A-1420B	\$0.60
50-60 Watt	Brass or W. P.	1425-1427A-1427B	.60
100 Watt	Brass or W. P.	1426-1428A-1428B	.60
150 Watt	Brass	2443	.80
200 Watt	Brass or W. P.	2444-2446A-2446B	.85
200 Old Style	Brass	2445	.85
200 Old Style	Weatherproof	2447A-2447B	1.00





## With 6 Fittings, Pipe Frameworks of Every Design Can Be Fabricated

**I**T is no longer necessary to stock a large variety of pipe fittings for constructing outdoor pipe frameworks. Six different fittings, and one size of bolt, are all that is needed.

Further, only one size pipe need be stocked, for with these new G-E fittings, any desired strength for columns or horizontal supports can be obtained by using two or more standard 1 1/4-inch pipes in place of pipe of larger size.

These fittings are made of malleable iron, hot-dip galvanized; can be quickly and easily assembled; and are ribbed to prevent slippage. All struts, or bracing members, are connected to columns through a single bolt, which acts as a hinge joint.

This hinge joint breaks the continuity of a section, thereby eliminating bending stresses in the connection; permits development of the full strength of the pipe within the limits of deflection; and assures a connection equal in strength to the shearing value of the bolt.

For complete information write to the nearest G-E office or to the General Electric Company, Schenectady, N. Y. Ask for a copy of GEA-1360.

  
GENERAL ELECTRIC  
SWITCHGEAR

[[ Join us in the General Electric program, broadcast every  
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500-64

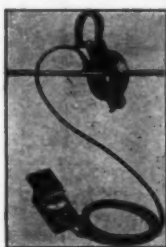




## A Handy Kit for Testing without Interrupting Service

WITH this handy kit you can test motors, transformers . . . check circuits . . . do a lot of general testing . . . without interrupting service. It has a new split-core transformer that opens with a flick of the thumb and snaps tightly closed, encircling the line wire.

Besides the transformer, the kit includes an ammeter, a voltmeter, a set



Transformer encircles the line wire

of leads, and a leather carrying case. It comes in two ratings—50/200 and 125/500 amperes.

Many other combinations with indicating and recording instruments are available.

Sturdy, compact, reliable, and efficient, this kit is ideal for the motor service man.

Your nearest G-E distributor will gladly give you complete information.

Ask for a copy of GEA-1376.

Distributed by  
GENERAL ELECTRIC SUPPLY CORPORATION

GENERAL  ELECTRIC

610-53

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N.B.C. NETWORK

**PL-16**  
**Molding**

**OVALDUCT**

3 Wire ..... Per Foot \$ .17

**OVALDUCT FITTINGS**

No.	Description	Price Each
24-CQ	Extension box cover for 4" outlet boxes.....	\$ .45
401	Box Connector with 1/2" Bonding.....	.25
2133	Squeeze Type Coupling 1 1/4" long.....	.15
2134	90 Degree Internal Elbow.....	.35
1135	45 " Flat.....	.26
2136	One piece 90 degree elbow.....	.60
2150	90 " Box Connector.....	.30
2159	Wire Toggle Fastener.....	.03
2161	Strap Fastener.....	.03
2181	Connector Ovalduct to Oval Knockout.....	.10
2662	Outlet Box 4 x 1 1/2".....	.30
2663	Extension Ring for Boxes.....	.20
2665	Outlet Box 4 x 1 1/2" with Fixture Stud.....	.28
2662	" " 3 1/4 x 1 1/2".....	.30
2665	" " 3 1/4 x 1 1/2" with Fixture Stud.....	.26
4170-S1	Sectional Switch Box 4 x 1 1/2" x 1.....	.35
4172-S1	Spacer for above box.....	.30

**MOLDING, WIREMOLD**

**MOLDING**

No. 500 2-Wire,	price per ft.	\$ .10
" 700 4-Wire, " " "	" " "	.12
" 1000 Master Size, " " "	" " "	.23

**FITTINGS FOR No. 500**

Number	Description	Price
502	Bushing.....	\$0.04
504	Supporting Strap.....	.04
506	Connecting Cover.....	.04
511-12	45 & 90 Deg. Elbows.....	.22
515	Tee Plain.....	.36
516	Cross Plain.....	.38
517	Internal Elbow.....	.24
518	External ".....	.22
519	Corner Box.....	.38
521	1 Piece Rosette.....	.36
523	1/2" Fixture Rosette.....	.75
524	" ".....	.70
525	Receptacle Base.....	.80
526	Keyless Receptacle.....	.95
527	Attachment Plug.....	1.00
532-23	2 1/2" x 3" Outlet Box.....	.45
535	Openwork Coupling.....	.36
599	Moulding Connector.....	.08

**FITTINGS FOR No. 700**

Number	Description	Price
701	Coupling.....	\$0.04
702	Bushing.....	.04
703	Clip.....	.06
704	1 & 2 Hole Strap.....	.06
706	Connection Cover.....	.04
707	Multiple Strap.....	.10
708	Fixture Hook.....	.22
709	Ground Clamp.....	.12
711-12	Elbows 45 & 90 Deg.....	.22
715	Tee.....	.36
717	Internal Elbow.....	.25
717A	Elbow Pull Box.....	.50
718	External Elbow.....	.22
719	Corner Box.....	.45
720A	Narrow Fitting.....	.55
720B	Show Case Outlet.....	.45
721	1 Piece Rosette.....	.35
724	Comb.....	.70
725	Receptacle Base.....	.80
726	Keyless Receptacle.....	.95
727	Plug Receptacle.....	1.00
728	Utility Box.....	.40
729	Cond. Type.....	.40
730	Contact Block.....	.26
731	Blank Cover.....	.15
732-3	2 1/2" x 3" Outlet Box.....	.45
734	Closed Extension.....	.65
735	Distribution Box.....	.75
736	Blank Cover.....	.16
737	4 1/2" Extension Box.....	.65
738	4 1/2" Fixture Box.....	.65
738D	Dipole Thru Hook Conn.....	1.50
738E	Stamped Hook.....	.65
	Canopy.....	.65

**FITTINGS FOR No. 700**

Number	Description	Price
739	6 1/2" Fixture Box.....	\$0.95
739A	6 1/2" Extension.....	.95
744	Single Deep Box.....	.85
744-2	2 Gang.....	1.20
745	Combination.....	.70
747	Single Shallow Box.....	.75
747-2	2 Gang.....	1.05
747-3	3 ".....	1.15
748	Single Surface.....	.85
748-2	2 Gang.....	1.15
748-3	3 ".....	1.20
748S	Shallow " Rec.....	.65
749	Switch & Recep.....	1.00
750	Push Switch Box.....	1.05
751	Single Adp. Plate.....	.70
752	2 Gang.....	1.25
753	3 ".....	1.30
760	Blank Extension Box.....	.95
760	Chase Nipple.....	.35
781&A	1 1/2" x 1/2" Box Connector.....	.35
782&A	1 1/2" x 1/2" Pipe Coupling.....	.36
783	1/2" Elbow Box Conn.....	.36
784	1/2" Pipe Coupl.....	.36
785	Comb. Connector.....	.28
786	Adj. Offset Conn.....	.40
788	Openwork Connector.....	.45

**FITTINGS FOR No. 1000**

Number	Description	Price
1001	Coupling.....	\$0.06
1002	Bushing.....	.04
1003	Clip.....	.06
1005	One Hole Strap.....	.08
1008	Hanger Assembly.....	.90
1008A	Hanger Clamp.....	.18
1009	Ground.....	.20
1011	90 Deg. Flat Elbow.....	.40
1013	Adj. Elbow.....	.40
1017	Internal Elbow.....	.40
1018	External.....	.35
1020	Keyless Receptacle.....	.90
1020A	Angle.....	1.40
1020B	Blank or Outlet Box.....	.50
1028	Utility Box.....	.70
1035	Distribution Box.....	1.10
1039	6 1/2" Fixture.....	.90
1048	Switch & Recep Box.....	1.00
1082	Pipe Coupling.....	.60
1085	Comb. Connector.....	.35
1086	Offset Connector.....	.70
1087	Kick Plate.....	.32
1089	Reducing Connector.....	.15
1000F	Flex. Fitting 18".....	1.75

**LEWIS METER AND SWITCH CABINETS**

CLASS A	Amp.	Volts	Wire	Fuse	Neutral	MAIN FUSE ACCESSIBLE	Numbers	Price
30	125-250	3	2	Solid.....		M7311-ML7311.....		\$15.20
30	125-250	3	2	".....		M7311M-ML7311M.....		14.65
30	125	2	1	".....		M7211-ML7211.....		14.75
30	125	2	1	".....		M7211M-ML7211M.....		14.65
30	125	2	2	Fused.....		M7211D-ML7211D.....		14.75
60	125-250	3	2	Solid.....		M7312-ML7312.....		19.75
60	125-250	3	2	".....		M7312M-ML7312M.....		19.05
60	125	2	1	".....		M7212-ML7212.....		19.30
60	125	2	1	".....		M7212M-ML7212M.....		19.05
60	125	2	2	Fused.....		M7212D-ML7212D.....		19.30
<b>SEALED MAIN FUSES</b>								
30	125	2	1	Solid.....		M5211 or ML5211.....		\$12.10
30	125-250	3	2	".....		M5311 " ML5311.....		12.80
30	125	2	2	Fused.....		M 211 " ML 211.....		12.20
30	125-250	3	2	Unfused.....		M 311 " ML 311.....		12.10
30	250	3	2	Fused.....		M 221 " ML 221.....		12.95
60	250	3	2	".....		M 222 " ML 222.....		15.80
30	125-250	3	2	Unfused.....		M 321 " ML 321.....		12.70
30	125-250	3	2	Solid.....		M 321SN or ML 321SN.....		12.70
60	125-250	3	2	".....		M 322 or ML 322.....		15.80

**Plugs, Appliance**

**N-SUNDRIES**

**PIPE NIPPLES**

Size Conduit	Close Nipples—Galv.									
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"		
Cond. Cond. Cond. Cond. Cond. Cond. Cond. Cond. Cond. Cond.	\$0.07	\$0.08	\$0.12	\$0.16	\$0.20	\$0.24				
Length Conduit	Standard Short Nipples—Black or Galv.									
2" to 3 1/2" Long.....	\$0.10									
3 1/2" to 4 1/2" ".....		\$0.12	\$0.15							
4 1/2" to 5 1/2" ".....			\$0.21	\$0.21						
5 1/2" to 6 1/2" ".....				\$0.35						
6 1/2" to 7 1/2" ".....					\$0.70					
7 1/2" to 8 1/2" ".....						\$0.85				
Length Conduit	Long Nipples—Black or Galv.									
4" Long.....	\$0.10									
6" ".....		.15	.17	.22	.28	.34	.40	\$0.80	\$1.00	
8" ".....		.18	.21	.27	.34	.40	.55	1.05	1.25	
10" ".....		.21	.23	.30	.37	.45	.60	1.12	1.40	
12" ".....		.22	.25	.33	.40	.50	.67	1.22	1.55	
14" ".....		.24	.27	.37	.40	.56	.75	1.35	1.65	
16" ".....		.30	.35	.45	.58	.70	.95	1.45	1.80	
18" ".....		.30	.38	.48	.61	.75	1.00	1.35	1.95	

**CHASE NIPPLES & COUPLINGS**

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Chase Nipples.....	\$ .10	\$ .10	\$ .10	\$ .14	\$ .25	\$ .28	\$ .32	\$ .50
Couplings.....	.12	.12	.12	.14				

For Erickson Couplings, see Page PL-8.

**CHASE MALE REDUCERS**

**CHASE FEMALE ENLARGERS**

**T & B or Similar**

1/2" to 1/2" Reducer, each.....	\$ .20
1 1/4" to 1 1/4" ".....	.25
1 1/2" to 1 1/2" ".....	.45
1 1/2" to 1 1/2" ".....	.50
1 1/2" to 1 1/2" ".....	.50

**NAILS—Insulated**

Millonite Insulated Nails, per dozen.....	\$ .05
Leather Nail Heads, ".....	.05
Staples Insulated, ".....	.05

**PLUGS, ATTACHMENT**

**ATTACHMENT PLUGS COMPLETE**

	Price
"Pony" Composition.....	\$0.15
Standard.....	.20
Genuine "Bakelite".....	.20
Polarized Standard Comp. Plug.....	.25
Large Size Double T Slot Comp. Plug.....	.70
Porcelain.....	.55
Weatherproof One Piece Comp. Plug.....	.40
Benjamin #903 Swivel Plug.....	.20
Pony Body Only.....	\$0.10
Standard Body.....	\$0.15
Large Body.....	\$0.35

**10 AMP.—CAPS ONLY**

**For Attachment Plugs**

"Pony" Cap Composition.....	\$0.10
"Standard" Cap.....	.10
"Bakelite".....	.15
Large Size Cap Composition.....	.25
Plug With Extension Knob.....	.20
Soft Rubber Cap.....	.25
"Standard" Cord Grip Cap.....	.30
Steel Covered Cap.....	.15
Brass.....	.40
Steel.....	.45
Disappearing Door Comp. Cap.....	1.00
Brass Cov. Cap.....	1.20
"Standard" Brass Cov. Finger Grip.....	.60
"Knostrain" Comp. Cap.....	.45
Brass Cov. Knostrain.....	.75
Comp. Fusible Cap.....	.25
Polarized 2 Wire Comp. Cap.....	.45
2 " Brass Cov. Cap.....	.45
2 " Steel.....	.30
2 " Cord Grip.....	.45

**20 AMP. CAPS**

**For Polarized Devices**

2 Wire Brass Covered Cap.....	\$0.85
3 ".....	1.00
3 " Steel Covered Cord Grip Cap.....	.90
3 ".....	1.10

**30 & 40 AMP. CAPS**

**For Polarized Devices**

30 Amp. 2 Wire Porcelain Cap.....	\$1.50
30 " 2 " Steel Cov. Cord Grip.....	1.80
30 " 3 " Porcelain.....	1.55
30 " 3 " Steel Cov.....	1.75
40 " 3 " Str. Cap Ground. C. G.....	2.85

**Flasher Plugs**

Diamond Flasher Button.....	\$0.60	No. 125 Speedoodle Plugs.....	\$2.50
"Prop" #530 Flasher Button.....	.50	No. 164.....	.60
"Rodal" 110 Volt " Plug.....	.50	No. 161.....	.80
" 220 Volt ".....	.65	No. 165.....	.90

**PLUGS, APPLIANCE**

Make	No.	Description	Price
American Beauty	802	Plug Complete for Small Irons.....	\$0.40
	806	" " " " Large.....	1.25
	807	" " " " Toasters & Stoves.....	.20
Beaver	F-1	"Gripall" Super-Type Adjustable Cont.....	.45
	F-4	" " " " Nickel Alloy.....	.55
	F-5	" " " " Armored Casing.....	.55
	F-6	" " " " Nkl. Alloy Cont.....	.60
	F-7	" " " " Adj. Cont. Bakelite.....	.50
	F-22	"Suizall" Heater Plug—Full Size.....	.20

Electrical Contracting, April, 1931

# Plugs, Appliance

## PLUGS, APPLIANCE, Continued

Beaver	F-31	Standard Heater Plug—Single Sided Cont.	\$0.15
"Gripall" & "Switzall"	F-32	Heater Plug Double Sided Contacts	.20
	F-33	Armored Casing (F-32 Type Armored)	.25
	F-34	Medium Heater Plug—Bakelite	.25
	F-36	Small Heater Plug—Black	.20
	G-1	"Gripall" Heater Switch Plug Adj. Cont.	.80
	G-2	"Gripall" Heater Switch Plug Nickel Alloy Contacts	.90
	G-21	Competitive Push Button Type	.45
	G-22	New Toggle Type	.45
Bryant	668	Universal Appliance Plug with Switch	.85
	699	Switchless	.60
	752	Appliance Plug with Indicating Switch	.60
	2966	Small Switchless Plug	.45
Cutler-Hammer	7051	Appliance Plug with Switch	.60
G. E.	2602	Armored Heater Plug No Switch	.25
	2633	Large Heater Plug	.20
	2642	Switch "with"	.45
	2699	Small "No"	.25
	2826	"Handy Pull" Heater Plug	.35
Hemco	H250	Switchless Appliance Plug Bakelite	.50
	H260	Switch	.75
Hotpoint	CD6P1	Iron Plug No Switch	.45
	CD69P1	"Armored"	.60
	CD79P1	"with"	1.00
Kool-Pull (Noark)	8037	Appliance Plug—No Switch	.75
	8039	"with"	1.00
Propp	5	One 4-All Appliance Plug—No Switch	.30
	52	Iron Plug with Switch	.50
	55	Standard Iron Plug—No Switch	.20
	56	Armored	.30
Reynolite	500	Heater Plug	.40
	510	Switch Heater Plug	.75
Rodale	P-21	Heater Plug No Switch Cold Molded	.15
	29	"Armored"	.20
	450	F tall Heater Plug—No Switch	.45
	610	Bakelite "Small"	.20
	615	"Armored Heater Plug—No Switch	.30
	850	Iron Plug with Switch	.45
	800	"Armored"	.65
Simplex	890	Armored Plug—No Switch	.75
	990	Deluxe Chromplate Plug	1.00
Sunbeam	A-55	Heater Plug	1.50
Torrid	B-070	Automatic Heat Control Plug	1.00
	B-080	Safety	1.00
Waage		3 & 4 Heat Plug Only	.50
Westinghouse	299423	Appliance Plug—No Switch	.75
	373656	"With"	1.00

## PANEL BOARDS OR FUSE CABINETS

### FRANK ADAM

All 30 Amp.—S. P.—NEC Fuses	Branch	Branch	Branch	Branch
"FBX" Safety Type Fuse Boxes	\$ 3.80	\$ 5.60		
"NR" "Main Cable Lug Only			\$ 8.90	\$11.90
"NR" "Solid Neutral	11.15	13.40	15.60	
NR3G "Main Cable Lug Only			16.50	19.80

### BENJAMIN-STARRETT

No.	Type and Description	4	6	8	10	12
60104-12 NP	One Fuse 3 Wire Serv.	\$ 5.20	\$ 7.40	\$ 8.90	\$10.40	\$11.90
66204-12 P	Two Fuse 2 and 3 Wire Serv.	7.50	11.15	13.35	15.60	18.60
66304-12 NEP	One Fuse with Switch Pl.	7.10	10.30	12.80	16.50	19.15
66404-12 EP	Two Fuse with Switch Pl.	10.30	15.25	19.15	21.80	25.15

### BULLDOG FUSENTERS

No.	Description	2	4	6	8	10	12
CBS	Surface Black Finish with shield	\$1.80	\$2.30	\$3.90	\$7.00	\$9.75	\$10.30
BOS	"Black Finish without Shield	1.65	2.15				
BF	Flush Luminized Finish	2.50	3.70	5.35	8.75	10.30	11.75
BBF	"Black Finish	2.00	2.75	4.70			
BSF	"Lum. Finish with Toggle Switches		6.60	9.90	13.20	15.70	19.80
BSSF	"Lum. Finish with one 30 A. Safetofuse		20.50	22.00	31.75	33.35	35.00
BSSF	"Lum. Finish with one 60 A. Safetofuse		21.50	22.30	32.25	33.75	35.40
BKF	"Lum. Finish with Pull Box		6.60	9.90	14.85	17.35	19.80

### All-Steel-Equip. Co., FUSE CABS

Style & No.	Description	2	4	6	8	12
C-702-4-6	Surface Small Type	\$1.80	\$2.55	\$3.95		
C-902-4-6	Flush Small Type	2.10	2.80	4.85		
D-3004 to 3074	Surface Type Single Fuse		3.20	5.10	\$7.50	\$10.10
D-3034 to 3094	Flush Type		3.75	5.60	9.00	12.10
D-4002 to 4012	Surface Type Double Fuse	3.20	5.10	10.10	23.00	36.00
D-4022 to 4032	Flush Type Double Fuse	3.75	9.00	12.10	27.00	45.00
DS-3304 to 4304	Flush or Surface-Spl.		6.90	9.25	13.80	21.00
DS-3502 to 4502	Flush or Surface-Double		6.90	9.25	21.00	34.50

### KILLARK

Standard Flush Type Panels	2	4	6	8	10	12
Series KRP-2 to 12 Inclusive	\$2.00	\$2.90	\$4.75	\$6.50	\$8.50	\$10.75

### CUTLER-HAMMER—Fuse Panels—Flush Mounting

Circuits	2 Cir.	4 Cir.	6 Cir.
Black Finish Series 4355 H1 to 6	\$ 1.90	\$ 2.60	\$ 4.65
Aluminum Finish Series 4355 H1 to 6	2.40	3.45	5.35
Circuits	8 Cir.	10 Cir.	12 Cir.
Black Finish Series 4355 H1 to 6	\$ 8.20	\$ 9.95	\$10.20
Aluminum Finish Series 4355 H1 to 6	8.65	10.95	11.65

Electrical Contracting, April, 1931

## PL-17

## Receptacles, Flush

### G. E. or TRUMBULL—Residence Panel Boards

Surface or Flush Mounting	4	6	8	10	12
Single No 3104 to 3212	Cir.	Cir.	Cir.	Cir.	Cir.
Flush Mtg. or Fusing					
2906 to 2912	\$2.80	\$ 4.55	\$ 9.65	\$11.25	\$13.00
Surface Mtg.					
Double No 3404 to 3412					
Flush Mtg. or Fusing					
2704 to 2712	\$ 9.10	12.40	18.15	23.10	26.40
Surface Mtg.					

### "KILLARK" Fuse Cabinets

Standard Flush Type Panels	2	4	6	8	10	12
Series KRP-2 to 12 Inclusive	Cir.	Cir.	Cir.	Cir.	Cir.	Cir.
	\$2.00	\$2.90	\$4.75	\$6.50	\$8.50	\$10.75

### SQUARE D—Fuse Cabinets

Series 37000 to 39000	2	4	6	8	10	12
Flush Series 37000 Black	Cir.	Cir.	Cir.	Cir.	Cir.	Cir.
"37000 Aluminum	\$1.85	\$2.50	\$4.50	\$7.90	\$9.50	\$11.15
Surface Series 39000 Black	2.35	3.35	5.10	8.30	10.00	11.15
NOTE: 2 & 4 Circuit Flush Type arranged for mounting direct to front side of studding with channels for lathe ends, each	1.85	2.50	4.50	7.90	9.50	11.15

### Combination Fuse Cabinets

60 Amp. Fuse Break and 30 Amp. Circuits	2	4	6	8
Flush Mounting Aluminum	Cir.	Cir.	Cir.	Cir.
Surface Black	\$7.45	\$12.40	\$14.00	\$14.85
	6.45	10.75	11.55	12.40

### WADSWORTH Fuse Cabinets & Panelboards

All Dead Front Single Fusing	2	4	6	8	10	12
Surface Mtg.	Cir.	Cir.	Cir.	Cir.	Cir.	Cir.
Flush Mtg. Hanger Support	\$2.30	\$3.00	\$4.85	\$5.75	\$7.55	\$11.55
Flush Type for Tag Sw.	2.85	3.80	6.10	7.55	10.20	12.00
	6.85	11.10	13.75	16.40	19.85	
Surface Mtg. Enc. Panel Boards 100 Amp. Mains			16 Cir.	20 Cir.	24 Cir.	
Flush	\$22.00	\$25.35	\$28.00	\$34.65		

### WESTINGHOUSE Junior Residence Type

Junior Residence Panels	2	3	4	6	8	10	12
No. K-64012-21 & 64052-61	Cir.	Cir.	Cir.	Cir.	Cir.	Cir.	Cir.
Junior Building Panels for Toggle Switches	\$2.50	\$2.70	\$3.75	\$5.35	\$8.75	\$10.30	\$11.70
No. K-64034-42 & 64074-81	6.60	9.90	13.20	15.70	19.80		

## PLATES & PLUGS, RECEPTACLE

### PLATES—For Flush Receptacles

All Types	Composition	.040 Gauge	.060 Gauge	.080 Gauge
Single or Duplex Plate	Lacquer B. Brass	\$0.20	\$0.15	\$0.20
Lift Cover Plate 1 Outlet	Lacquer B. Brass	.30	.25	.35
Radio Plug—Sgle. or Duplex	"	.15	.20	.30
Telephone "One Outlet	"	.20	.35	.45
"Double	"	.20	.45	.50
Disappearing Door Plate Sgle.	"			.75
"Duplex	"			1.15
Chapman Receptacle	"			.75
Blank Plates One Gang	"	.20	.25	.30
Bull's Eye Plate One Gang	"	.75	.60	.70
"and 1 Switch Comb.	"	.80		.90
"and 1 Recept.	"			.90
Switch and Sgle. or Duplex Recept.	"	.40	.50	.60
Steel Plates for 30 and 40 Amp. Polarized Receptacles	"			.75
Solid Brass Plates 30 and 40 Amp.	"			1.50
Scoreless Plates Bakelite for Hubbell Receptacles	"			.55
Porcelain Enameled Plates for Sgle. or Duplex Receptacles	"			.25
Mirror Glass Plates for Single Receptacles	"			1.00
Deluxe Metal Plates for Single or Duplex Receptacles	"			.90
Deluxe Wood Inlaid Plates for Single or Duplex Receptacles	"			2.35

### CAPS & PLUGS For Receptacles

10 Amp. Pony Composition Cap.	Blades	Price
10 "Standard		\$0.10
10 "Cap With Extension Knob		.20
10 "Brass Covered Cap		.40
10 "Steel		.15
10 "Cord Grip Cap		.30
10 "Tandem Blade Compo. Cap.		.25
Radio Jack Plug		.50
Chapman Plug Reversible Compo.		.85
Chapman Plug Porcelain		.45
Disappearing Door Plug Brass Top		1.00
10 Amp. 2 Wire Polariz. Comp. Cap.		.25
10 "2 "Cord Grip Cap.		.40
10 "2 "Comp.		.50
10 "2 "Cord Grip		.75
10 "2 "Comp.		.85
10 "2 "Cord Grip		1.65
10 "3 "Comp.		.45
10 "3 "Cord Grip		.65
10 "3 "Comp.		.70
10 "3 "Cord Grip		1.00
10 "3 "Pore		.75
10 "3 "Comp. Cord Grip		1.50
40 "3 "Heavy Duty Angle Cap.		2.50
Lamp Only 110 Volts for Bull's Eye Receptacles		.65

## RECEPTACLES, FLUSH

### STANDARD RECEPTACLES OR CONVENIENCE OUTLETS

Without Plates	Plates Extra	Price
Shallow Comp. Side Wired	Single	\$ .25
"Pore	Single	.35
"Pore	Duplex	.35
Deep Comp. Top	Single	.40
"Pore	Duplex	.60
"Pore	Single	.40
"Pore	Duplex	.60



**Plates Extra Except Where Marked "X"**

<b>Plates Extra Except Where Marked "X"</b>		<b>Price</b>
<b>For Lift Cover Plate Single.....</b>		<b>\$ .70</b>
<b>" " " Duplex.....</b>		<b>.70</b>
<b>2 Sgl. With 3 1/4" Box Cover.....</b>		<b>.30</b>
<b>1 Dup. " 3 1/4" " ".....</b>		<b>.35</b>
<b>1 Sgl. " 4" " ".....</b>		<b>.45</b>
<b>1 Dup. " 4" " ".....</b>		<b>.60</b>
<b>1 Sgle " Large Small Brass Pl.....</b>		<b>1.10</b>
<b>1 Edison Screw Base Recp. Singl.....</b>		<b>1.25</b>
<b>Chapman Receptacle.....</b>		<b>.65</b>
<b>Radio Single.....</b>		<b>1.00</b>
<b>" Duplex.....</b>		<b>1.35</b>
<b>Disappearing Door Recp. Single.....</b>		<b>.75</b>
<b>" Duplex.....</b>		<b>1.10</b>
<b>Screwless Plate Recp. Singl.....</b>		<b>.45</b>
<b>" Duplex.....</b>		<b>.45</b>
<b>10 Amp. Polariz. Cor 2 Wire Single.....</b>		<b>.68</b>
<b>20 " " " 2 " ".....</b>		<b>1.25</b>
<b>30 " " " 2 " ".....</b>		<b>1.40</b>
<b>10 " " " 3 " ".....</b>		<b>3.00</b>
<b>30 " " " 3 " ".....</b>		<b>1.40</b>
<b>40 " " " 3 " ".....</b>		<b>1.60</b>
<b>30 " " " 3 " " With Box Cover.....</b>		<b>4.75</b>
<b>40 Amp. Polariz. 3 Wire.....</b>		<b>5.50</b>

No.	Connections	Brass	Nickel
134	Several loud speakers . . . . .	\$2.50	\$2.60
135	Loud speaker . . . . .	1.00	1.10
136	Aerial & ground . . . . .	1.00	1.10
137	Battery (with plug) . . . . .	2.50	2.60
138	Electrical on . . . . .	1.00	1.10
142	Double loud speaker . . . . .	1.15	1.25
238	Loud speaker, aerial & ground . . . . .	2.00	2.20
241	Aerial, ground & elect'l . . . . .	2.00	2.20
242	Loud speaker & elect'l . . . . .	2.00	2.20
243	Aerial, ground & battery . . . . .	2.00	2.20
253	Loud speaker, aerial, ground & elect'l . . . . .	3.00	3.20

	Price
Pilot Light Plate and Single Outlet Comp.....	\$2.00
" " Duplex .....	3.50
" " Switch and Bull's Eye .....	3.00
" " Recept. Only With Plate .....	2.00
Switch and Plate 10 Amp. Sgle. Out. Comp.....	1.75
Hubbell Switch Tap Combination Screw Plate #7093-Recep. #7103.....	2.75
Hubbell Switch Tap & Pilot Light Comb. Screw Plate #7317-Recep. #7280	3.35

## ALABAX RECEPTACLES AND FIXTURES

**Symbol:** Column No. 1—Number of Alabax Fixture.  
Column No. 2—Resale Price Standard White Glaze Finish.  
Column No. 3—Resale Price All Over Color B-D-E-F-G-H-J-K-L-M.  
Column No. 4—Resale Price Stripe Decoration No. 1A-2A-4A.

Column No. 1 Number	Column No. 2 White	Column No. 3 Color	Column No. 4 Stripe	Column No. 1 Number	Column No. 2 White	Column No. 3 Color	Column No. 4 Stripe
AL844	\$3.00	\$3.50	.....	AL1351	\$1.75	\$2.05	\$2.25
845	3.35	3.80	.....	1369-70	2.90	3.20	3.35
846	3.65	4.00	\$4.50	1371	1.95	2.25	2.40
847	4.00	4.50	4.85	1449-50	2.85	3.10	3.30
848	2.90	3.25	3.40	1450	2.15	2.40	2.55
849-50	2.45	2.75	2.90	1469-70	3.00	3.30	3.50
851	1.50	1.75	1.90	1471	2.00	2.30	2.50
852	3.05	3.50	3.95	1475-76	2.80	3.05	3.25
853	3.35	3.80	4.25	1477	3.45	3.75	3.95
859-63	1.95	2.20	2.40	1497	1.35	1.65	1.80
864	2.50	2.95	3.40	2008	1.50	1.75	1.95
865	2.80	3.25	3.70	2009	1.40	1.70	1.90
866	2.50	2.95	.....	2010	1.55	1.80	2.00
867	2.80	3.25	.....	2011	1.20	1.45	1.65
869-70	2.60	2.90	3.05	2012	1.25	1.50	1.70
871	1.65	1.90	2.10	2013	1.70	2.00	2.20
872	3.05	3.50	3.95	2014	1.85	2.15	2.30
873	3.35	3.85	4.25	2015	1.55	1.85	2.00
875	2.45	2.70	2.90	2371	1.25	1.50	1.70
876	1.95	2.15	2.40	2469	4.05	4.35	4.65
919-20-221-70	2.00	2.20	2.40	2471	3.10	3.40	3.85
921	.75	1.05	1.20	2669	4.95	5.40	5.85
923	2.45	2.70	.....	2671	4.45	4.90	5.35
924	2.10	2.40	.....	2946	3.65	4.10	4.55
929-30	2.05	2.35	2.50	2947	3.95	4.40	4.85
949-50	2.10	2.40	2.60	2952	3.05	3.50	3.95
951	1.15	1.45	1.60	2953	3.35	3.85	4.25
952	2.05	2.35	2.50	2964	2.40	2.95	3.35
960	1.05	1.35	1.50	2965	2.80	3.25	3.70
962	2.10	2.40	2.60	2972	3.05	3.50	3.95
969-70	2.25	2.55	2.75	2973	3.35	3.85	4.25
971	1.30	1.60	1.75	2990	2.20	2.50	.....
980-82	1.70	2.00	2.20	2991	1.60	1.90	.....
983	1.65	1.95	2.10	3100	2.45	2.90	3.35
984	1.90	2.20	1.95	3101	2.10	2.40	2.70
989	1.90	2.20	2.35	3102	1.85	2.30	2.75
990	1.95	2.25	2.45	3103	1.50	2.40	.....
1200-02	2.10	2.40	2.55	4070	1.50	1.75	.....
1201-03	2.40	2.70	2.90	4071	1.30	1.55	.....
1273	.50	.65	.75	4072	1.55	1.80	.....
1274	.80	.95	1.05	4073	1.35	1.60	.....
1275	.90	1.05	1.10	9828	2.20	2.40	2.60
1276	.20	.40	.40	9836	2.20	2.40	2.60
1300-01	2.95	3.20	3.40	9896	2.40	2.65	2.95
1349-50	2.75	3.05	3.20	9906	2.45	2.75	2.95

The above Prices do not include Glassware or Lamps.

### STANDARD RECEPTACLES or Lampholders

Keyless Porcelain Standard Base			Uni- versal Nos	Price
Pony Cleat	Receptacle No. S. H. Groove	Side Screws	50715	\$0.15
	Round	Center	9171	.20
Standard Cleat		Side	28793	.35
	With		9402	.30
	Brass Shell		4013	.40
			9403	.45
Concealed	No. S. H. Groove		4000	.45
			4001	.50
Oblong	With		58300	.50
Round			8105	.45
	Removable Rings		50744	.50
Oblong	S. H. Groove for		4036	.60
Mogul-P & S No. 520	Arrow 5012—Hubbell 346	G.E. 1194		.55
Miniature or Candelabra	Receptacle (Small Type)		9445-6	.20
	Extended Type		367	.25

[illegible][illegible]

10 A. Small Concealed	3	Wire.....	\$ .60
10 A. Small Cleat	2	".....	.50
10 A. For Wood Molding	2	".....	.50
10 A. Polarized Cleat	2	".....	.70
10 A. Polarized Concealed	2	".....	.70
10 A. Polarized Wood Molding	2	".....	.80
10 A. Fielding Receptacle	3	".....	.60
10 A. Polarized Concealed	3	".....	.80
20 A. Polarized Cleat	2	".....	.80
20 A. Polarized Concealed	2	".....	.80
20 A. Polarized Wood Molding	2	".....	.90
30 A. Polarized Concealed	3	".....	1.10
30 A. Polarized Composition	2	".....	1.30
40 A. Polarized Porcelain	2	".....	1.10
40 A. Polarized Composition	3	".....	1.80
Porc. Sub. Base for 40 Amp. Rec.....			1.20

Pull for Ceiling Ring 7' Chain.....	\$0.3
" " " 4' Cord.....	.3
" " " Chain & Ins.....	.3
" " " & Cord.....	.3
" " " 3' Chain.....	.3

Stand. Shallow Screw Term.....	\$0.2
Covered.....	.3
With 6" Wire Lead.....	.4
S. H. Groove.....	.4
Competitive Shallow Screw Term.....	.1
Covered.....	.2
No. 14 Wire Lead.....	.1
Deep Type With Screw Term.....	.2
Covered.....	.4
No. 18 Wire Lead.....	.4
Solid Sien Rec. With Screw Trim.....	.4

### STANDARD ROSETTES—Porcelain

Cleat—1 Piece Junior Fuseless Rosette.....	\$ .1
" " " "	.2
" " " " Fusible.....	.3
Concealed—2 Piece Concealed Fuseless Rosette.....	.2
" " " " Fusible.....	.3
" " " " For Wood Moulding-Fuseless.....	.2
" " " " Fusible.....	.2
	For
Box Type—1 Piece Rosette or Screw Terminal.....	3¼ Box \$ .8
" " " " Wire Terminal.....	.40
For Special Condulet Rosettes—See Pages PL-10, 11 and 12.	

Electrical Contracting, April, 1931



### HEAVY DUTY WEATHERPROOF SOCKETS

Copper or Aluminum Shell		Price
All Keyless		
1 Piece with $\frac{1}{4}$ or $\frac{1}{2}$ Nipple		\$0.65
1 " " Cord Grip		.65
2 " " $\frac{1}{4}$ Nipple		.80
2 " " $\frac{1}{2}$ " "		.80
2 " " Cord Grip		.80
Shadeholders for above sockets		Price
2 $\frac{1}{4}$ Aluminum or Copper Extra		\$0.35
3 $\frac{1}{4}$ " " " "		.50
4 " " " "		.65

### HEAVY DUTY SOCKETS—Benjamin

Price Each	
Benox Keyless Socket with Clamp Ring #4700 to 4703 Medium Base	\$1.25
" " without " 4712 to 4715 " "	1.05
" " " " 4706 to 4709 " "	2.00
Benco Keyless Socket Copper or Alum. #4200-1-4-5 & 4335 & 7	.75
" " Pull " " Brass #4202-4203-4336	.90
" " " " 4207-8 4225-26 4236-37 Brass, Copper or Alum.	1.50
" " Mogul " " Copper Clad #4210-4297	2.00
Benco Threaded Holders Only	2 $\frac{1}{4}$ 3 $\frac{1}{4}$ 4
Polish. Alum. Weatherprf—#4215 & 4217	\$ .35 \$ .60 \$1.00
Copper " " 4370-72 & 73	.40 .60 .80
Brushed Brass " " 4377-79 & 80	.40 .60 .80

### BENJAMIN MOGUL SOCKETS

With		With
$\frac{1}{4}$ or $\frac{1}{2}$ $\frac{1}{4}$ or $\frac{1}{2}$		Alum.
Without		Yoke
One Piece Socket with Lamp Grip	\$1.00	\$1.15 \$1.50
Two Piece Socket with Lamp Grip	1.20	1.45 1.70

### BENJAMIN REFLECTOR SOCKETS

With Type X or XR Fitting	
Porcelain or Similar	
Medium Base Keyless Tapped $\frac{1}{4}$ - $\frac{1}{2}$ - $\frac{1}{4}$ No. 4650-51 & 65	\$1.20
" " " " Self-Locking $\frac{1}{4}$ - $\frac{1}{2}$ - $\frac{1}{4}$ No. 4628-29-30-32-33	1.60
" " " " Shock Absorb. $\frac{1}{4}$ - $\frac{1}{2}$ - $\frac{1}{4}$ No. 4676-77-78-80-81	1.45
" " " " Shock Absorb. Self Lock No. 4548-49-50-52-53	1.90
" " " " Pull Chain No. 4534-35 & 4660-51-67	2.05
Mogul Base Keyless Shock Absorb. No. 4670-71-72	1.95
" " " " Not Shock Absorb. No. 4656-57 4666	1.65
If X or XR Fitting not supplied on above sockets deduct	.45

### SWITCHES, FLUSH TUMBLER

Plates & Boxes Extra		Price
Square Handle Porcelain Cup—Spl. Pole		\$ .35
" " " " Dble. " "		1.00
" " " " 3 Way " "		.50
" " " " 4 Way " "		3.00
" " " " Composition Cup—Spl. Pole		.90
" " " " Dble. " "		1.40
" " " " 3 Way " "		1.35
" " " " 4 Way " "		3.40
20 Amp. Sgle. Pole		1.50
20 Amp. Dble. Pole		1.60
Round Handle Porcelain Cup—Spl.		.35
" " " " Dble. " "		1.00
" " " " 3 Way " "		.50
" " " " 4 Way " "		3.00

### New Circuit Type

Twin-2 Sgle. Pole Switches	\$1.35
Twin-1 Sgle. Three Way	1.50
Twin-2 Sgle. 3 Way Switches	1.65
Triplet-3 Sgle. Pole Switches	2.00
Triplet-2 Sgle. & 1-2 Way Switches	2.20
Lock Type Porcelain Cup—Spl. Pole	1.50
" " " " Dble. " "	2.20
" " " " 3 Way " "	1.85
" " " " 4 Way " "	3.80
EXTRAS—For Luminous Tip add for Each Handle	.40
For Glo Guide Handle Switches add for Each	1.00

### TUMBLER SWITCH COMBINATIONS

Description		Price
10 A. D. P. Switch—Pilot Lt., .060 Plate		\$3.00
10 " " " " Receptacle " "		1.75
20 " " " " 15A " "		2.50
Switch—Tap & Pilot Light with " "		3.35
" " " " & Receptacle " "		1.75

### PLATES For Tumbler Switches

Price	
1	2
Gang	Gang
3	4
Gang	Gang
Stamped Brass Sprayed Finish .040 Thick	\$ .15 \$ .30 \$ .45 \$1.10
" " " " Brush Brass .040	.30 .40 .60 1.35
" " " " Sprayed .060	.25 .50 .75 1.35
" " " " Brush Brass .060	.30 .60 .90 1.60
Bakelite or Composition Molded	.20 .40 .60 .80
Twin & Triple B. B. or Bakelite Plates	.25 .25 .25 .25
Comb. Switch and Recept.—Moulded Comp.	.30 .40 .40 .40
" " " " Pilot Light	.75 .75 .75 .75
Hubbell Bakelite Screwless Plates	.60 1.10 1.60 2.25
Bryant Deluxe Wood Inlaid any Finish	2.75 4.70 7.70 .
" " " " All Metal	1.00 1.75 2.45 .
Guth Porcelain Enamel Plates	.25 .60 1.00 .
Glass Mirror Plates	1.00 1.75 2.50 3.25
Blank Plate .040 Brush Brass Finish	.30 .60 .90 .

### SWITCHES, FLUSH PUSH

Plate & Boxes Extra		Price
Standard Shallow Type Porcelain Cup—Single Pole		\$0.35
" " " " Double " "		1.00
" " " " 3 Way " "		.50
" " " " 4 Way " "		3.00
Deep Type Porcelain Cup—Single Pole		.75
" " " " Double " "		1.15
" " " " 3 Way " "		1.15
" " " " 4 Way " "		3.30

### Plate and Boxes Extra—Continued

Price	
Special High Grade Composition Cup—Single Pole	\$1.40
" " " " Double " "	1.70
" " " " 3 Way " "	1.70
" " " " 4 Way " "	3.70
Lock Type Porcelain Cup—Single Pole	1.50
" " " " Double " "	2.20
" " " " 3 Way " "	2.20
" " " " 4 Way " "	3.80
Electroler Non-Indicating	1.90
" " Indicating	1.90
Extra for Luminous Button Add Per Switch	.40

### PUSH SWITCH COMBINATIONS

With Plates		Price
Bryant 117 D. P. Indic. Switch Flush Receptacle & .060 Plate		\$2.35
413 One Push Switch—Bulls Eye and Solid Plate		4.50
518 " " " " Disap. Door Recp. Bulls Eye—Solid Plate		5.25
465 " " " " D. P. Flush Switch & Pilot Lamp .060 Plate		3.65
467 " " " " Flush Switch—Flush Recept.—Bulls Eye—Solid Plate		5.75
558 " " " " Duplex		6.60

### PLATES For Flush Push Switches

Price	
1	2
Gang	Gang
3	4
Gang	Gang
Stamped Brass Sprayed Finish .040 Thick	\$ .15 \$ .30 \$ .45 \$1.10
" " " " Brush Brass .040	.20 .40 .60 1.35
" " " " Sprayed .060	.25 .50 .75 1.35
" " " " Brush Brass .060	.30 .60 .90 1.60
Bakelite or Composition	.20 .40 .60 .80
Bryant Deluxe Plates Wood Inlaid	2.75 4.70 7.70 .
" " " " All Metal	1.00 1.75 2.45 .
Guth Porcelain Plates	.25 .60 1.00 .
Glass Mirror Plates	1.00 1.75 2.50 3.25
Blank Plate .040 Brush Brass Finish	.30 .60 .90 .
Combination Switch & Receptacle Moulded	.30 .40 .40 .40
" " " " Push & Recept. Plates .060 Brass	.50 .50 .50 .50
" " " " " " " " Guth Enameled	.65 .65 .65 .65
" " " " " " " " Mirror Glass	1.75 1.75 1.75 1.75

### SWITCHES, SURFACE SNAP

#### METAL COVERED SNAP SWITCHES

5		10	20	30
Amp.		Amp.	Amp.	Amp.
Poles	Volts	Type	Size	Pony
Single	125	Non-Indicating		
"	"	Indicating		
"	"	Non-Indicating	Standard	
"	"	Indicating		
Double	250	Non-Indicating		
"	"	Indicating		
Triple	"	Non-Indicating		
"	"	Indicating		
3-Way	125	Non-Indicating		
4-Way	"	Non-Indicating		
Electroler	"	Non-Indicating		
"	"	Indicating		

#### ALL PORCELAIN SNAP SWITCHES

5		10	20	30
Amp.		Amp.	Amp.	Amp.
Poles	Volts	Type	Size	Pony
Single	125	Non-Indicating		
"	125	Indicating		
"	125	Non-Indicating	Standard	
"	125	Indicating		
Double	250	Non-Indicating		
"	250	Indicating		
3-Way	125	Non-Indicating		
4-Way	125	Non-Indicating		
Electroler	125	Non-Indicating		
"	125	Indicating		

#### TUMBLER OR TOGGLE SNAP SWITCHES

Metal or Composition Covers		3	4
Single Pole		Way	Way
125-250 Volt			
5 Amp. Closed or Slott. Base	\$ .35	\$ .85	\$ .80 \$1.40
5 Amp. with Outlet Box Cover	.65	.85	.90
10 Amp. Closed or Slott. Base	.80	1.10	1.25

#### SNAP SWITCHES FOR WOOD MOLD, CONDULETS, ETC.

Metal Covered		Non-Indicating	Indicating
5 Amp. 125 Volts		Indicating	Indicating
Single Pole	\$ .65	\$ .60	\$ .75 \$ .70
Double	1.20	1.10	1.20 1.15
Three Way	1.00	1.00	1.30
Electroler	1.50	1.50	1.50

#### PARTS FOR SNAP SWITCHES

Price	
Handles—Standard Type Each \$ .12—Ratchet Type	\$ .30
Bases—Porcelain 5 Amp. \$ .12—10 Amp. \$ .15—20 Amp.	.30
Covers—10 Amp & Under Metal \$ .15—Porcelain	.20
Over 10 Amp.	.30

### SWITCHES, PULL CORD, CHAIN, CANOPY, LEVOLIER, ETC.

#### PULL CORD SWITCHES—BODIES ONLY

Small Socket Type		Price
Ceiling—Bottom Pull		\$0.95
Wall—Side Pull		.95
Rosette—Side Pull		.95
Fixture—Bottom Pull		1.25
" " Brass Cap		.10
" " Brass Cap		.10
" " Brass Cap		.20
Small Cleat Base		.40
Small Slotted or Concealed Base		.35
Large Concealed Base		.40
Wood Moulding Base		.55
Small Box Base Brass Covered		.60
3 $\frac{1}{4}$ " Box Base Brass Covered		.65
4 " Box Base Brass Covered		1.10
3 $\frac{1}{4}$ " Box Cover with Ring		.20
4 " Box Cover with Ring		.25







# Seven

## Strong Features of a New BRYANT Top Wired "Templus" Duplex Flush Receptacle

When placing orders, specify "No. 4812"; with Plaster Ears, "No. 4812PE."

No. 4812 supersedes No. 9022, listed on Page 53, Catalog No. 30. List Prices and carton and standard package quantities are the same as for No. 9022.



No. 4810

### Single Top Wired "Templus" Flush Receptacle

This is the running mate of No. 4812, and supersedes No. 9020, listed on Page 53, Catalog No. 30. List Prices and carton and standard package quantities are the same as for No. 9020. When desired with Plaster Ears, specify "No. 4810PE."

1. Body is of Bryant Brown Bakelite.
2. Completely enclosed moisture-proof solid Bakelite back.
3. Semi-flexible type of yoke facilitates adjustment in the box without sacrificing rigidity after the installation has been made.
4. Top wiring terminals, with two binding screws on each side, make of this device a connecting block as well as a receptacle.
5. Return bend bronze brushes assure positive contact for either parallel or tandem blades.
6. Bakelite shoulders protect the screws and hold the wires in place.
7. Can be furnished either with or without plaster ears.



# BRYANT

## SUPERIOR WIRING DEVICES

*Manufactured by*  
THE BRYANT ELECTRIC COMPANY, BRIDGEPORT, CONN.

E 431

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Type "NTT"  
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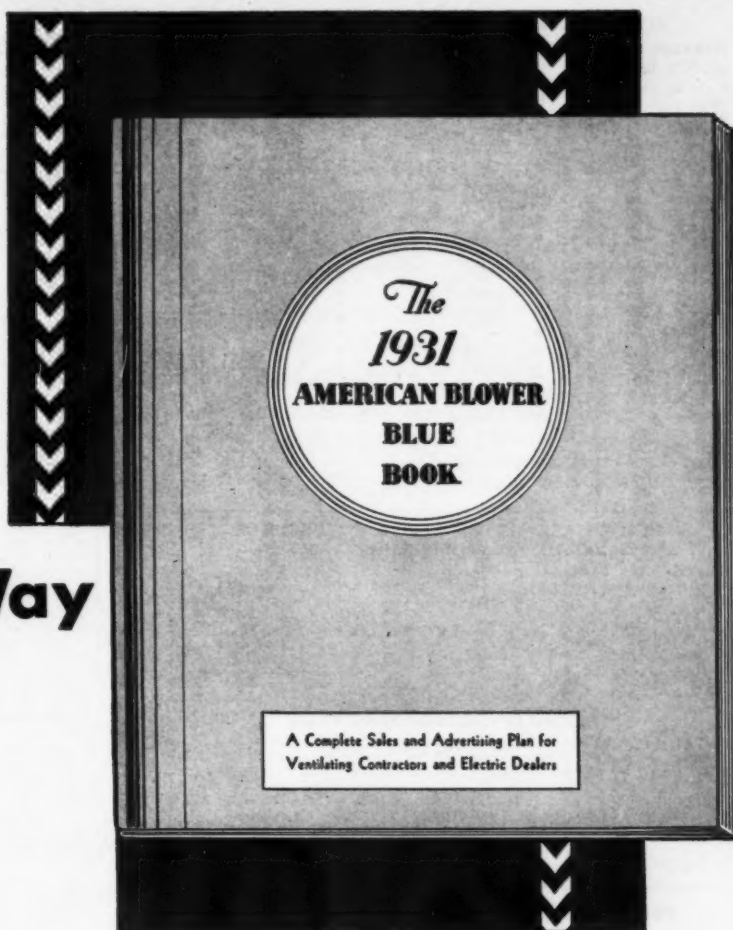
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## METER SERVICE SWITCHES

## "Square D" Without End Walls Live &amp; Dead Fuse Type

METER TESTING						
Number	Amps.	Pole	Fused	Neutral	Description	Price
55211	30	2	1 Plug	Solid	Single Type Fuse Dead.....	\$ 2.85
58211	30	2	2 "	Fused	" " " " " " " " " " " "	2.95
SK-916	30	2	1 "	Solid	" " " " " " " " " " " "	2.95
55311	30	3	2 "	Solid	" " " " " " " " " " " "	3.70
57311	30	3	2 "	Solid	" " " " " " " " " " " "	2.80
15211	30	2	1 "	"	Gang Type Fuse Dead.....	3.35
18211	30	2	2 "	Fused	" " " " " " " " " " " "	4.40
39231	30	2	1 "	Solid	Gang Type Acces. M. Fuses	5.20
39331	30	3	2 "	"	" " " " " " " " " " " "	4.15
15311	30	3	2 "	Solid	" " " " " " " " " " " "	4.15
17311	30	3	2 "	"	" " " " " " " " " " " "	3.30
58251	30	2	2 Cart.	Fused	Cartridge Fuse Live.....	4.05
26251	30	2	2 "	"	" " " " " " " " " " " "	4.05
57351	30	3	2 "	Solid	" " " " " " " " " " " "	8.45
23252	60	2	2 "	Fused	" " " " " " " " " " " "	8.90
27312	60	3	2 "	Solid	" " " " " " " " " " " "	18.50
14312	60	3	2 "	"	" " " " " " " " " " " "	18.05
29253	100	2	2 "	Fused	" " " " " " " " " " " "	18.95
27313	100	3	2 "	Solid	" " " " " " " " " " " "	27.30
14313	100	3	2 "	"	" " " " " " " " " " " "	

## NON-METER TEST TYPE

Number	Amps.	Pole	Fused	Neutral	Description	Price
26311	30	3	2 Plug	Solid	Plug Type Fuse Dead.....	\$ 2.58
26351	30	3	2 Cart.	"	Cart. Type Fuse Dead.....	4.60
SK-659	30	3	2 Cart	Switched	Cart. Type Fuse Dead.....	11.70
SK-660	60	3	2 "	"	" " " " " " " " " " " "	10.20
SK-674	100	3	2 "	"	" " " " " " " " " " " "	

## POLYPHASE METER SERVICE SWITCHES

## "Square D" Accessible Main Fuse Type

METER TEST TYPE						
Number	Amps.	Pole	Fused	Neutral	Description	Price
30391	30	3	3 Cart.	"	" " " " " " " " " " " "	\$10.65
30392	60	3	3 "	"	" " " " " " " " " " " "	30.35
30393	100	3	3 "	"	" " " " " " " " " " " "	30.00
NON METER TEST						
Number	Amps.	Pole	Fused	Neutral	Description	Price
10391	30	3	3 Cart.	"	" " " " " " " " " " " "	\$10.05
10392	60	3	3 "	"	" " " " " " " " " " " "	18.00
10393	100	3	3 "	"	" " " " " " " " " " " "	28.25

## "Square D" Sealable Main Fuses

METER TEST TYPE						
Number	Amps.	Pole	Fused	Neutral	Description	Price
36351	30	3	3 "	"	" " " " " " " " " " " "	\$11.00
36352	60	3	3 "	"	" " " " " " " " " " " "	17.50
36393	100	3	3 "	"	" " " " " " " " " " " "	26.50
NON METER TEST						
Number	Amps.	Pole	Fused	Neutral	Description	Price
SK-671	30	3	3 Cart.	"	" " " " " " " " " " " "	\$ 4.60
SK-672	60	3	3 "	"	" " " " " " " " " " " "	11.70
SK-673	100	3	3 "	"	" " " " " " " " " " " "	19.20

## FITTINGS FOR STANDARDIZED SWITCHES

	Price
End Walls for 30 Amp. Switches.....	\$ .30
Trough Closing Plates No. 20533 & 34.....	.10
Connecting Trough No. 20733-3 1/4" Long.....	.45
Universal End Wall & Shutters.....	.80
Meter Shutter only No. 24358.....	.15

## OUTDOOR METER BOXES

	Enam.	Galv.
SK2158 with Test Block.....	\$7.05	\$9.55
SK2186 without Test Block.....	4.85	7.30
12611 W. P. Meter Sw. Box.....	9.90	

## TYPE C

"Square D" Single Throw, Industrial Switches  
Quick Break Only

250 Volts Fusible					Fused and Unfused.	
Amps.	2 Pole	3 Pole	575 V. AC with Arc Suppres.	3 Pole		
30	#85251 \$3.20	#85351 \$ 5.20	30-575V. Fused.....	46341	\$10.95	
60	#46252 \$8.20	#46352 10.00	30-60 575V. Not Fused.....	41342	10.95	
100	#46253 \$12.75	#45353 15.50	60 575V. Fused.....	46342	13.65	
200	Solid Neutral #48313 14.60	100 575V. Not Fused.....	41343	17.30		
100	Solid Neutral #48313 14.60	100 575V. Fused.....	46343	21.85		
200	#46254 \$20.00	#46354 26.40	200 575V. Not Fused.....	41344	29.15	
300	Solid Neutral #47314 22.75	200 575V. Fused.....	46344	38.25		

## TYPE A WITH ARC SUPPRESSORS

## "Square D", Industrial Quick Make &amp; Break, Single Throw

230 V. DC. and AC. Fusible					230-600 V. DC. and 575 V. AC. Unfusible	
Amps.	2 Pole	3 Pole	Amps.	2 Pole	3 Pole	
x30			x30	#81252 \$ 9.55	#81351	\$11.40
60	#86252 13.65	#86352 18.20	30-60	#81262 12.75	#81342	15.95
100	#86253 20.90	#86353 27.30	100	#81263 20.95	#81343	24.10
200	#86254 36.40	#86354 40.95	200	#81264 28.20	#81344	34.60
x60 Amp. Sw. with 30 Amp. Spacing					(x—250 Volts only).	

## 30 AMP. TYPE C

## "Square D", Quick Break, Industrial, Single Throw

250 Volts					Single Throw 3 Pole	
No.	2 Pole	Description	No.	3 Pole	Price	
80251	\$3.20	Quick Make & Break	80351	\$ 5.20		
91251	2.65	Not Quick Break	91351	4.00		
x90251	7.75	Quick Break Only	x90351	10.00		
(x 60 Amp. Switches with 30 Amp. Clips).						

## MOTOR STARTERS

## "Square D", Quick Make &amp; Break, Single Throw

Numbers & Types	Amps.	Volts	2 Pole	3 Pole	4 Pole
76251-351-451 Cover Control.....	30	250 V.	\$15.60	\$16.40	\$22.75
76352-76452 " " " " " " " " " " " "	60	250 V.	22.75	31.85	
76341-76441 " " " " " " " " " " " "	30	575 V. A.C.	22.75	31.85	
69251-351-451 without Cover Cont.....	30	250 V.	13.65	14.60	20.95
69352-76452 " " " " " " " " " " " "	60	250 V.	20.95	30.00	
69341-76441 " " " " " " " " " " " "	30	575 V. A.C.	20.95	30.00	
75251-351 Time Protective.....	30	250 V.	6.40	6.85	
SK2054 Time Protective.....	30	575 V. A.C.			13.65
No. 98251 For Small AC & DC Motors up to 1/4 H. P. 220 Volts AC..					1.85

## TYPE "C" SWITCHES

Cutler-Hammer (T-V) Single Throw Industrial Type  
Series 4131

250 Volts DC or AC Fusible					575 Volts AC Fusible	
Amps.	2 Pole	3 Pole	Amps.	3 Pole	4 Pole	
30	4131H2 \$ 3.20	4131H13 \$ 5.20	30	4131H24 \$10.90	4131H34	\$18.20
60	4131H3 8.20	4131H14 10.00	60	4131H25 13.65	4131H35	20.00
100	4131H4 12.75	4131H15 15.50	100	4131H26 21.85	4131H36	36.40
200	4131H5 20.00	4131H16 26.40	200	4131H27 38.25	4131H37	51.90
400	4131H6 49.15	4131H17 67.35				
125-250 Volt Solid Neut. Fusible					Non-Fusible Type 250 DC 500-600 AC	
Amps.	3 Pole	4 Pole	Amps.	2 Pole	3 Pole	
30	4131H39 \$ 6.75	4131H44 \$ 8.20	x30	4131H54 \$ 3.20	4131H58	\$ 4.10
60	4131H40 9.00	4131H45 11.40	60	4131H55 8.20	4131H59	8.65
100	4131H41 14.60	4131H46 20.50	100	4131H56 10.90	4131H60	12.30
200	4131H42 22.75	4131H47 31.85	200	4131H57 19.10	4131H61	22.75
400	4131H43 63.70	4131H48 82.00	x30	Amp 250 Volts Only		

## ENTRANCE SWITCHES, LIGHT TYPE

## Cutler-Hammer (T-V)

2 Pole					3 Pole	
Amps.	Description	Numbers	Price	Numbers	Price	
30	For Plug Fuses.....	4141H1&2	\$ 1.65	4141H3-4	\$ 2.90	
30	2 Blades-2 Fuses.....			4141H5	2.25	
30	For Cartridge Fuses.....	4141H6&8	1.80	4141H9-10	3.60	
30	For Cartridge Fuses.....	H4141H7	2.75			
30	For 2 Cart. Blades-2 Fuses.....			4141H11	3.25	
30	Non-Fusible.....	4141H23	2.35	4141H24	4.10	
60	For Cartridge Fuses.....	4141H13	6.70	4141H14-15	7.80	
60	For 2 Blades & 2 Fuses.....			4141H16	7.45	
100	For Cartridge Fuses.....	4141H18	10.30	4141H19-20	12.65	
100	For 2 Blades & 2 Fuses.....			4141H21	11.90	

## METER SERVICE SWITCHES

## Cutler-Hammer (T-V) Without End Walls

Meter Test Type					Without End Walls	
Live Fuse Type						
30	For Plug Fuses.....	4307H1&5	\$ 2.95	4307H9	\$ 3.70	
30	For Cartridge Fuses.....	4307H2&6	3.30	4307H10	4.05	
60	For Cartridge Fuses.....	4307H3&7	8.45	4307H11	8.90	
100	For Cartridge Fuses.....	4307H4&8	15.05	4307H12	16.00	
Dead Fuse Type						
30	For Plug Fuses.....	4309H1	2.40	4309H3	3.70	
30	For Cartridge Fuses.....	4309H4	3.80	4309H6	4.30	
60	For Cartridge Fuses.....	4309H7	12.00	4309H9	13.75	
100	For Cartridge Fuses.....	4309H10&11	21.20	4309H12	23.00	

## SAFE-LOCK METER SERVICE SWITCHES

## Cutler-Hammer (T-V) Without End Walls

Accessible Main Fuses					Without End Walls	
Test Type						
30	For Plug Fuses.....	4325H1&2	\$ 4.00	4325H3	\$ 4.50	
30	For Cartridge Fuses.....	4325H4&5	4.90	4325H6	4.80	
60	For Cartridge Fuses.....	4325H7&8	15.05	4325H9	15.95	
100	For Cartridge Fuses.....	4325H10&11	23.85	4325H12	25.60	
Non-Test Type						
30	For Plug Fuses.....	4327H1&2	3.65	4327H3	4.00	
30	For Cartridge Fuses.....	4327H4&5	4.00	4327H6	4.60	
60	For Cartridge Fuses.....	4327H7&8	14.15	4327H9	15.00	
100	For Cartridge Fuses.....	4327H10&11	23.00	4327H12	24.00	

## POLYPHASE

## Meter Service and Entrance Switches

All 230 V.—A. C.					Without End Walls	
Description						
Sealed Fuses-Meter Test 3 Phase 3 Wire..	30 A	60 A	100 A	200 A		
	\$11.35	\$17.60	\$27.30	\$57.20		
Access. " " " " " " " " " " " "	15.85	33.45	50.15	90.65		
" " " " " " " " " " " "	11.45	21.15	30.80	66.00		
" " " " " " " " " " " "	15.60	37.00	53.70	98.60		
" " " " " " " " " " " "	10.85	19.35	29.05	48.40		
" " " " " " " " " " " "	11.45	21.15	30.80	56.35		

## UNIVERSAL METER SERVICE SWITCHES

## Cutler-Hammer (T-V)

No.	Without End Walls	Price
4311H1	All 30 Amp. Standardized Meter Service Switches	\$3.70
4311H2	Branch Circuit Type.	4.00
4311H3		4.60
For Detailed Description See Cutler-Hammer (Trumbull Vanderpoel) Catalog.		

## SHUTTERS END WALLS

## Cutler-Hammer (T-V)

	30 Amp.	60 & 100 Amp.
Single Piece End Wall used with Cabinet.....	\$ .35	\$ .80
Shutters for Shutter Type End Wall.....	.15	.30
Conduit End Wall.....	.35	.80



### Switches

**Trumbull Electric**

			30 A.	60 A.	100 A.
End Wall One Piece for Standardized Switches.....			\$.30	\$.80	\$.80
End Wall One Piece for Polyphase Switches.....			.30	.80	.80
Shutters for End Walls for Standardized Switches.....			.15	.30	.30
Shutters for End Walls for Polyphase Switches.....			.15		
Troughs 2-3" & 4....	\$ .40	5"....\$ .45	6"....\$.50	7"....\$.55	

## TYPE "A" INDUSTRIAL SWITCHES

**Manual Operated** **Cutler-Hammer**

### Trumbull Single Throw, Quick Make & Break

Amp	230 Volts Fusible			230 Volts—No Fuse	
	2 Pole AC-DC	3 Pole	AC Only	2 Pole AC-DC	
30.....	72221	\$10.95	72321	\$13.65	36221 \$ 9.60
60.....	72222	13.65	72322	18.20	36222 11.85
100.....	72223	20.95	72323	27.30	36223 20.00
200.....	72224	36.40	72324	41.00	36224 25.50

### Trumbull "SNUF-ARC" TYPE

Amp	Fusible		No Fuse	
	2P, 230-575 AC & DC	3P, 230-575 AC Only	2P, 575V AC & DC	3P, 230-575 AC Only
30	72261 \$16.40	72361 \$20.00	36261 \$12.75	* 36321 \$11.40
60	72262 17.30	72362 21.00	36262 13.65	36362 15.95
100	72263 27.30	72363 31.85	36263 20.95	36363 24.10
200	72264 43.25	72364 52.80	36264 28.20	36364 34.00

## SMALL ENTRANCE SWITCHES

**Trumbull Electric Closed or Open Ends**

Numbers	Amps. Volts	Fusing	2 Pole	3 Pole
5790 EW Porc. Base.....	30 125	For 1 Plug Fuse.....	\$1.65	
5791-2-3-4 & 5693.	30 125	Plug Fuses.....	1.85	\$3.41
5801-5892 Porc. Base ....	30 125-250	.....	1.85	2.40
13640-13641 Kappa .....	30 250	No Fuse-Slate Base.....	2.75	4.16
13642-43 & 13743 Kappa ..	30 250	For Enclosed Fuses.....	2.75	4.30
13221-13321 Quick Break..	30 250	.....	3.55	5.25

### STANDARDIZED MAIN ENTRANCE SWITCHES

**Trumbull Electric Single Phase or DC Solid End Plate**

16361 to 16368.....	30	125-250	For Plug Fuses.....	\$3.30	\$4.10
16371 " 16378.....	30	" "	" Enclosed Fuses..	3.65	4.40
16381 " 16388.....	60	250	" "	9.75	11.75
16391 " 16398.....	100	250	" "	15.85	18.75

### STANDARDIZED METER SERVICE SWITCHES

**Trumbull Electric For Meter Testing Open End**

Without End Walls				
16300 to 16309.....	30	125-250	For Plug Fuses....	\$ 2.95 \$ 3.75
16315 " 16324.....	30	" "	" Enclosed Fuses....	3.35 4.10
16330 " 16338.....	60	" "	" "	8.45 8.90
16341 " 16348.....	100	" "	" "	15.05 15.90

## ACCESSIBLE FUSE METER SWITCHES

**Trumbull Electric With Test Blades With and Without**

End Walls			
18111.....	30	125	For 1 Plug Fuse.... \$ 3.55
18211-18311.....	30	125	Plug Fuses..... 4.05
18121.....	30	125-250	1 Enclosed Fuse 3.95
18221-18321.....	30	"	Enclosed Fuses. 4.90
18122-222-322.....	60	"	"
18123-223-323.....	100	"	"

### Without Test Blades

†19111.....	30	125	For 1 Plug Fuse....	\$ 3.35	...
†19111-19111.....	30	125-250	Plug Fuses.....	3.70	\$4.00
†19121.....	30	"	1 Enclosed Fuse.....	3.95	...
†19231-19321.....	30	"	Enclosed Fuses.....	4.65	4.65
†19122-222-322.....	60	"	"	14.50	15.80
†19123-223-323.....	100	"	"	23.35	24.65
†No End Walls.....			†With End Walls.....		

## SEALED FUSE METER SWITCHES

**Trumbull Electric With Test Blades With and Without**

		End Walls			
†15827	30	125	For 1 Plug Fuse....	\$ 2.40	
†28111-28211-28311	30	125	Plug Fuses.....	3.55	\$ 3.75
†28121	30	125	1 Enclosed Fuse	3.85	
†28221-28321	30	125-250	Enclosed Fuses.	4.10	4.35
†28122-28222-28322	60	" " "	" " "	13.25	14.50
†28123-223-223	100	" " "	" " "	22.00	23.75

at Blades	20	125
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*29111.....	30	125	For 1 Plug Fuse.....	\$ 3.10	.....
*29211-29311.....	30	125-250	" Plug Fuses.....	3.10	\$ 3.30
*29121.....	30	125	" 1 Enclosed Fuse	3.45	
*29221-29321.....	30	250	" Enclosed Fuses	3.75	3.90
*29122-222 & 322.....	60	250	" Enclosed Fuses	12.35	13.60
*29123-223 & 323.....	60	250	" Enclosed Fuses	20.70	22.00
†No End Walls.			‡With End Walls.		

## UNIVERSAL METER SERVICE SWITCHES

### Trumbull Electric Without End Walls

971-123	30	125	For 1 Plug Fuse.....	\$3.75	....
972-123	30	125	For 1 Plug Fuse.....	4.70	....
973-333	30	125	For 2 Plug " Solid Neu.		\$4.10
975-333	30	125	For 3 Combinations....	5.30	5.30
979-333	30	125	For 4 Combinations....	5.30	5.30

## POLYPHASE ENTRANCE & METER SWITCHES

**Trumbull Electric**

Series Nos.	Style	30 Amp.		60 Amp.	
		3 Wire	4 Wire	3 Wire	4 Wire
16379	Entrance—"DO-ALL"	\$ 4.70			
15321-15623	Acc. Fuse-Test Conn.	11.66	\$15.00	\$21.10	\$37.00
17321-17623	Acc. Fuse without Test Conn.	10.95	12.80	19.40	22.00
26321-26623	Sealed Fuse with Test Conn.	11.50	14.40	17.60	33.50

Series Nos.	Style	100 Amp.	
		3 Wire	4 Wire
15321-15623	Acc. Fuse-Test Conn.	\$30.80	\$47.00
17321-17623	Acc. Fuse without Test Conn.	29.05	33.40
26321-26623	Sealed Fuse with Test Conn.	27.30	44.00

## METER SERVICE AND ENTRANCE SWITCHES

### SERVICE AND ENTRANCE ACCESSIBLE FUSE TYPE

Westinghouse "WK-6"

Amps.	Fused Plug	With Test Facilities				Without Test Facilities			
		2 Pole		3 Pole		2 Pole		3 Pole	
		No.	Price	No.	Price	No.	Price	No.	Price
30		65000	\$ 3.50			65010	\$ 3.30		
30		65001	4.00	65002	\$ 4.35	65011	3.65	65012	\$ 4.00
30	Enclosed	65055	3.90			65063	3.90		
30	"	65003	4.85	65004	4.85	65013	4.60	65014	4.60
30	"	65006	1.95	65007	1.95	65015	1.40	65016	1.90
100	"	65007	23.70	65008	25.45	65017	22.80	65018	23.70

# PL-24

## Switches

POLYPHASE METER SWITCHES				
Westinghouse "WK-54"—Sealed Main Fuses				
30 Amp.	#60266-3 Pole	230 Volt AC—Less End Wall.	.....	\$11.00
60	60267-3	230	.....	16.70
100	60268-3	230	.....	26.30

Westinghouse "WK-65"—Accessible Fuses				
30 Amp—Less End Walls.	Meter Test	3Phase 4W-S.N. Non-Meter Test	.....	
60	65100 \$11.00	65143 \$15.00	65103 \$10.40	
100	65101 20.20	65146 35.95	65104 18.45	
	65102 29.80	65141 46.45	65105 28.05	

METER TRIMS—END WALLS—TROUGH				
For Meter Switches				
One Piece Meter Trims.	.....	30 Amp. 60 & 100 Amp.	.....	
Blank End Wall or Shutter Type End Wall.	.....			
Shutter Type Meter Trim or Adapter Trim.	.....			
New Universal Trim with Slide.	.....			
Replacement Plate or Adapting Plate.	.....			
Wiring Trough 2-3 & 4' long. 40c-5'. 45c-6'. 50c-7'. 55c-8'. 60c.	.....			
Fuse Receptacle #R57252.	.....	Less Fuses.	.....	\$1.25

"TYPE A" INDUSTRIAL SWITCHES				
Westinghouse "WK-66"—Quick Make & Break				
250 V. DC—230 V. AC—Fusible	600 V. DC—575 V. AC—Fusible	.....	.....	
Amps. 2 Pole	3 Pole	2 Pole	3 Pole	
30 #66100 \$10.90	#66101 \$12.70	#66020 \$16.35	#66021 \$19.95	
60 #66103 13.60	66104 18.15	66023 17.25	66024 20.90	
100 #66106 20.90	66107 27.25	66026 27.25	66027 31.75	
200 #66109 36.30	66110 40.85	66029 42.65	66030 52.65	
250 V. DC, & 230 V. DC Non-Fusible	230 & 575 V. AC—Non-Fusible	.....	.....	
Amps. 2 Pole	3 Pole	4 Pole		
30 #66127 \$ 9.55	#66128 \$11.35	#66129 \$16.35		
30-60 #66047 13.60	66048 16.35	66049 21.80		
100 #66056 20.90	66057 24.50	66058 31.75		
200 #66059 28.15	66060 34.50	66061 46.30		

"TYPE C" INDUSTRIAL SWITCHES				
Westinghouse "WK-97"—Quick Make & Break				
250 V. DC—230 V. AC—Fusible	575 V. AC—Fusible	.....	.....	
Amps. 2 Pole	3 Pole	4 Pole		
30 #597100 \$ 5.45	#597101 \$ 6.80	#597151 \$10.90	#597152 \$15.15	
60 #597103 8.15	597104 10.00	597154 13.60	597155 19.95	
100 #597106 12.70	597107 15.45	597157 21.80	597158 36.30	
200 #597109 19.95	597110 26.30	597160 38.10	62161 51.75	
250 V. DC, & 230 V. AC—Non-Fus.	575 V. AC—Non-Fusible	.....	.....	
30 #597010 \$ 5.00	#597011 \$ 6.35	#597054 \$10.90	#597055 \$18.15	
60 #597013 8.15	597014 10.00	597056 13.60	597057 19.95	
100 #597016 12.70	597017 15.45	597058 21.80	597059 36.30	
200 #597019 19.95	597020 27.20	597060 38.10	597061 51.75	

ENTRANCE SWITCHES				
Noark Closed Ends				
Number	Amp.	Volt	Fuses	Blades
8283.....	30	125	1 Plug	1 Solid
8383.....	30	125	2	2 Fused
8393.....	30	125-250	2	2 Solid
8683.....	30	125-250	2 N.E.C.	2 Fused
8093.....	30	125-250	2	2 Solid
8136-1.....	60	125-250	2	2 Solid
8226-1.....	60	250	2	2 Fused
8131-1.....	100	125-250	2	2 Solid
8221-1.....	100	250	2	2 Fused

METER SERVICE SWITCHES				
Noark Sealed Service SECO Without End Walls				
Number	Amp.	Volt	Fuses	Blades
9993.....	30	125	1 Plug	1 Solid
9543.....	30	125	1	1 Solid
9553-0523.....	30	125-250	2	2 Fused
9563.....	30	125-250	2 N.E.C.	2 Solid
9533.....	30	125-250	2	2 Solid
9573.....	30	125	1	1 Solid
66576.....	60	230	1	1 Solid
66566.....	60	250	2	2 None
66536.....	60	125-250	2	2 Solid
66561-66571	100	250	1 or 2	1 or 2 None
66531.....	100	125-250	2	2 Solid

Noark Meter Service & Entrance ACCO Without End Walls				
Amps.	Fused For	Meter Service Test Type	Entrance Non Test	
30A	Plug.....	9343 \$ 3.55	8343 \$ 3.30	
30A	.....	9353 4.00	8353 3.65	8323 \$ 4.00
30A	Enc.....	9363 4.85	8363 4.60	8333 \$ 4.60
30A	.....	9373 3.90	8373 3.90	
60A	.....	66366 14.95	66366 15.80	76366 14.10
100A	.....	66361 23.70	66361 25.45	76361 22.85

ACCO Entrance Range & Lighting Switch				
No. 66336RLA.	Range and Lighting Sw. 1-60A. 250V. and 4-30A. 125V. Branches.	.....	.....	\$23.80
No. 66336RLB.	Range and Lighting Sw. 1-60A. 250V. and 6-30A. 125V. Branches.	.....	.....	26.25
No. 30.....	Meter Back Plate and Switch Support for above.	.....	.....	2.00

UNIVERSAL Meter Service Switches—No End Walls				
Number	Service Switch	Branch Circuits	Fuse in 2 Pole	3 Pole
971123.....	1	1	2	2
9723-972123.....	1	1	4	4
973333.....	1 or 2	1 or 2	1 or 2	2
9753-9793.....	1 or 2	1 or 2	2 or 4	4
975333-979333.....	1 or 2	1 or 2	2 or 4	4

## Switches

Noark Doall Without End Plate				
Amps.	Fused For	Numbers	Price	Numbers
30A	Plug.....	913123-911123	\$ 2.95	912333-914333
30A	Enclosed.....	921223	3.30	922333-924333
60A	.....	921226	8.40	923336
100A	.....	921221	14.95	925331

"TYPE C" "NUBLADE"—Quick Break				
230 Volts Fusible				
Amp.	Number	Price	Number	Price
30	8223	\$ 2.70	8233	\$ 4.30
60	8226	8.15	8236	10.00
100	8221	12.70	8231	15.40
200	8222	19.95	8232	26.30
400	8224	49.00	8234	67.15

230 Volts Solid Neutral				
Amp.	Number	Price	Number	Price
30	8933	\$ 5.20	8943	\$10.00
60	All Solid	8936	10.00	8946
100	Switching Neutral	8931	15.40	8941
200		8932	26.30	8942
400		8934	67.15	8944

Non-Fusible				
Amp.	Number	Price	Number	Price
30	8723	\$ 2.75	8733	\$ 4.10
60	8726	8.15	8736	8.65
100	8721	10.80	8731	12.25
200	8722	19.05	8732	22.70
400	8724	36.30	8734	47.20

Quick Break "TYPE C" "NUBLADE" 575 V.-AC				
575 Volts AC Fusible				
Amp.	Number	Price	Number	Price
30	8433	\$10.90	8443	\$18.15
60	8436	13.60	8446	19.95
100	8431	21.80	8441	36.30
200	8432	38.10	8442	51.75

ACCESSORIES FOR NOARK SWITCHES				
Single Piece End Wall for 30 Amp. Switches.	.....	\$ .30	For 60 & 100 Amp.	\$ .80
Shutter for	.....	30	60	100
Universal End Wall No. 909103.	.....	40		
Blanking Side No. 908103-908203.	.....	15		
Trough—3-4 & 5' 4.40-6' 4.45-7' 4.50-8' 4.55-9' 4.60	.....			
Cabinet Fuse Block No. 902413.	.....	1.25		

POLYPHASE				
Meter Service and Entrance Switches				
125-250 Volts	Main Entrance	Meter Service	Without End Walls	
	"ACCO" QUAD	"ACCO" QUAD	"SECO" QUAD	
	BREAK	BREAK	BREAK	
"DOALL"—3 WIRE Accessible Fuses	.....	Sealed Fuses	.....	
Amp. Number	Price	Number	Price	Number
30	851233 \$ 4.65	77033 \$10.40	67033 \$11.05	67533 \$10.95
60	851236 11.60	77036 18.45	67036 20.20	67536 16.70
100	851231 19.05	77031 27.20	67031 30.00	67531 26.30

SOLID NEUTRAL SWITCHES				
Noark Fusible—Quick Break				
Amps.	Volts	3 Pole-2 Poles	4 Pole-3 Poles	5 Pole-4 Poles
30	125-250	8133 \$ 3.20	8143 \$ 8.15	8153 \$12.70
60		8136 9.10	8146 11.35	8156 19.95
100		8131 14.50	8141 20.45	8151 35.85
200		8132 22.70	8142 31.75	8152 50.82
400		8134 63.55	8144 81.70	8154 111.00

BULLDOG SWITCHES				
Toggle Type—Quick Make & Break				
Cat. Number	Volt	Poles	Blades	Fuses
92211 & T-82211	125	2	1	1 Plug
90211	125	2	2	2
90311	115	3	3	3
92311	125-250	3	2	2 Solid
91311	125-250	3	2	2
92221	250	2	1	1 Cart.
90221	250	2	2	2
90321	230	3	3	3
91321	250	3	2	2 Solid
90351	575 A. C.	3	3	3
81321-81321U	230-460	3	3	3

"TYPE C" NON-INTERLOCKING				
Quick Make & Break				
Single Throw	Fusible	Type "C"		
Amps.	250 Volts DC—230 Volts AC	575 Volts AC		
30 A. Porc. Base.	50221S \$ 3.20	50321S \$ 5.15	Equipped with Arc	
30 A. End Plates.	50221P 3.20	50321P 5.15	Chokers	
30 A. Slate Base.	50221 5.40	50322 10.00	50351 \$10.90	50451 \$18.15
60 A. " "	50222 8.20	50352 13.60	50452 26.30	
100 A. " "	50223 12.70	50323 15.40	50353 21.80	50453 36.30
200 A. " "	50224 20.00	50324 26.30	50354 38.10	50454 51.75
400 A. " "	50225 40.00	50325 67.15		

Switches

TYPE "C" NON-INTERLOCKING—Continued

Single Throw		Not Fusible		Type "C"	
Solid Neutral Blades Omitted		3 Pole 2 Blades 2 Fuse Holders 230 V.-AC & DC	4 Pole 3 Blades 3 Fuse Holders 115-230 V.-AC	5 Pole 4 Blades 4 Fuse Holders 115-230 V.-AC	
x 30 Amp. Type C	52311P	\$ 2.50			
30	52321P	3.20	52421 \$ 6.40	52521 \$ 12.75	
60	52322	9.10	52422 11.40	52522 20.00	
100	52323	14.60	52423 20.50	52523 36.00	
200	52324	22.75	52424 31.85	52524 61.00	
400	52325	65.75	52425 82.00	52525 122.00	
x This Switch for 125 Volts Ed. Plug Fusible.					
30 A. 2 Pole—250 Volt.		53221S \$ 3.20	53321S \$ 4.00	53421S \$ 5.90	
30-60 A. DC and 230 Volts.		53222 8.15	53322 8.65	53422 13.60	
100 A. AC 3 & 4 Pole.		53223 10.90	53323 12.25	53423 20.90	
200 A. 230 Volts.		53224 19.00	53324 22.70	53424 38.10	
400 A. AC Only.		53225 36.30	53325 47.20	53425 63.50	

30 AMP. SERVICE ENTRANCE SWITCHES

Cat. Number		Bulldog—Not Meter Test		Price
		Volt	Poles	
100211S & P	125	2	Fusible—For Plug Fuses	\$1.65
104211S & P	125	2	Quick Make & Break	2.75
100221S & P	250	2	—For Cartridge Fuses	2.50
103221S & P	250	2	Not	2.75
100311SP & 101311P	115	3	A.C. Plug Fuses	3.00
104311S	115	3	A.C. " " Quick Make & Break	4.35

MAIN SERVICE  
Meter Test Switches

Number		Combining a Meter Test Switch with Range and Lighting Circuits		Price
		Amp.	Volt	
721204	60	125-250	3 Solid	\$24.10
721206	60	125-250	3 " " 1-60A & 3-30A	25.50
431101	Meter Mounting Plate and Cabinet Support			1.10
412112	" " End Plate			.30

"TYPE A"

Bulldog Single Throw Quick Make and Break

250 V. DC & 230 V. AC Fusible		2 Pole		3 Pole		4 Pole	
		No.	Price	No.	Price	No.	Price
30 Amp.	10221	10	10.90	10321	13.60	10421	16.35
60 Amp.	10222	13	16.60	10322	18.15	10422	21.80
100	10223	20	20.90	10323	27.25	10423	36.30
200	10224	36	36.30	10324	40.85	10424	54.45
400	10225	68	68.10	10325	82.50	10425	107.25
575 Volts—AC Fusible							
30 Amp.	10261	10	16.35	10351	19.25	10451	24.50
60	10262	17	25.15	10352	30.90	10452	36.30
100	10263	27	27.25	10353	31.75	10453	41.75
200	10264	42	42.65	10354	52.65	10454	63.50
400	10265	90	90.75	10355	99.00	10455	128.00
Not Fusible—230 V.-AC, D.C. 575 A.C. Arc Chok 575 A.C. Arc Chok.							
30 Amp. 230 Volts only	13221	11	11.35	13421	16.35		
60 Amp.	13222	11	11.80	13422	15.90	13452	21.80
100	13223	19	19.95	13453	24.05	13453	31.75
200	13224	25	25.40	13454	34.50	13454	46.30
400	13225	54	54.45	13455	83.50	13455	107.25
Not Fusible—600 V.-AC & DC							
30-60 Amp.	13262		\$12.70				
100	13263		20.40				
200	13264		27.65				
400	13265		66.25				

COMPENSATOR SWITCHES

Bulldog Quick Make & Break Fusible

Amps.		230 Volt AC		4 Pole	
		3 Pole			
30 A.	30321	16	16.35	30421	\$ 21.80
60 A.	30322	17	17.45	30422	26.30
100 A.	30323	28	28.15	30423	47.20
200 A.	30324	47	47.90	30424	65.85
400 A.	30325	76	76.25	30425	118.80
Amps.		575 Volts AC Arc Chokers			
		3 Pole			
30 A.	30351	18	18.35		
60 A.	30352	19	19.25		
100 A.	30353	29	29.95		
200 A.	30354	50	50.85		
400 A.	30355	81	81.70		

MOTOR STARTERS

Bulldog

30 Amp.—Type A—230 Volts AC		3 Pole	4 Pole
60	40321	\$16.35	40421 \$22.70
100	40322	22.70	40422 31.75
200	40323	46.00	40423 61.75
400	40324	82.70	40424 111.75

NOTE: For Bulldog Switches not listed deduct 10% from Bulldog Lists.

SMALL ENTRANCE SWITCHES  
Columbia, 30 Amp.

Description		2 Pole	3 Pole
Single Fused Single Blade-125 Volt-Plug Fused	1980-321	\$1.50	
Double " " " " " "	1980-322	1.90	
" " " " " "	1980-323	2.35	
" " " " " "	1980-324	2.50	
Single Fused Single Blade-125 Volt-Plug Fused	1981-3	\$2.15	
Double " " " " " "	1981-4	2.45	
" " " " " "	1981-5	4.00	
" " " " " "	1981-6	4.40	

ENTRANCE SWITCHES

Range and Lighting		Columbia		3 Pole 125-250 Volt	
Cat. No.	Amp.	Branches			Price
3551	60	1-30A-1-60A, 250V, N. E. C. Fused & 2-30A. Plug Fused			\$34.60
3552	60	1-30A-1-60A, 250 V. " " " " 4-30A. " "			35.40
3553	60	1-30A-1-60A, 250 V. " " " " 6-30A. " "			38.00

BRANCH CIRCUIT ENTRANCE SWITCHES

Columbia									
30 Amp. Series	2 Circuit 2 Pole	2 Pole	4 Circuit 3 Pole	2 Pole	5 Circuit 3 Pole	2 Pole	8 Circuit 3 Pole	2 Pole	8 Circuit 3 Pole
2401 to 2406	\$3.90	\$4.90	\$5.20	\$5.85	\$6.20	\$7.15	\$7.15	\$9.50	\$9.50
3401 to 3406	4.90	6.20	6.50	7.15	8.45	9.50	9.50	9.50	9.50
3501 to 3506	4.75	5.85	6.20	6.90	7.50	8.45	8.45	8.45	8.45
Series 30—Quick Break—250 Volts for Meter Trims For Cartridge Fuses									
30 Amp.                      60 Amp.                      100 Amp.                      200 Amp.									
2 Pole.....	3022	\$5.55	3025 \$ 8.75	3028 \$12.50	3031 \$18.30				
3 Pole.....	3023	7.50	3026 10.00	3029 16.15	3032 24.05				

INDUSTRIAL SWITCHES

Series 70 Type C Fusible		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	C7001	\$ 9.30		C7002	\$11.30
60A	C7004	12.00		C7005	15.50
100A	C7007	18.85		C7008	23.65
200A	C7010	27.95		C7011	34.65
Series 70 Type A Fusible		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	A7001	10.30		A7002	\$12.85
60A	A7004	13.10		A7005	17.30
100A	A7007	21.45		A7008	27.50
200A	A7010	30.50		A7011	28.35
Series 71-500 Volts Fusible		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	7101	\$13.60		7102	\$15.50
60A	7104	14.00		7105	16.00
100A	7107	23.50		7108	26.65
200A	7110	37.70		7111	42.25
Series 73-500 Volts Unfused		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	7301	\$10.80		7302	\$12.70
60A	7304	10.90		7305	13.25
100A	7307	17.15		7308	19.20
200A	7310	23.65		7311	28.45
Series 73-600 Volts Fusible		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	7301	\$14.60		7302	\$16.05
60A	7304	14.60		7305	16.00
100A	7307	24.10		7308	27.15
200A	7310	38.60		7311	42.50
Series 74-600 Volts Unfused		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	7401	\$11.70		7402	\$14.35
60A	7404	12.45		7405	14.95
100A	7407	18.90		7408	21.45
200A	7410	25.15		7411	29.25
Series 20-250 Volts Fusible		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	2022	\$ 5.10		2023	\$ 6.85
60A	2025	6.85		2026	7.90
100A	2028	10.85		2029	13.35
200A	2031	19.10		2032	23.85
Series 23-250-500 Volts Unfused		2 Pole		3 Pole	
		Number	Price	Number	Price
30A	2322	\$ 4.75		2323	\$ 6.25
60A	2325	8.95		2326	9.55
100A	2328	11.35		2329	12.55
200A	2331	19.10		2332	23.40

MOTOR STARTING SWITCHES

Columbia, 250 Volts

			2 Pole		3 Pole
30 Amp. Motor Start Switch.....	6001	\$12.50		6002	\$16.70
60 "					

Wadsworth Switches

Single Phase and D. C.		MAIN ENTRANCE SWITCHES						Accessible Fuses	
Number	Amps.	Volts	Poles	Blades	Fuses	Neutral	Fuses		
1450-1250	30	125	2	1	1 Plug	Solid		\$ 3.50	
1402-1202	30	125	2	2	2 "	None		3.95	
1403-1203	30	125-250	3	2	2 "	Solid		4.25	
2250	30	125	2	1	1 NEC			4.85	
2202	30	250	2	2	2 "	None		4.85	
2203	30	125-250	3	2	2 "	Solid		4.85	
1800	60	125	2	1	1 "			13.95	
1802	60	125 or 250	2	2	2 "	None		14.75	
1803	60	125-250	3	2	2 "	Solid		15.65	
1900	100	125	2	1	1 "			22.65	
1902	100	125 or 250	2	2	2 "	None		23.45	
1903	100	125-250	3	2	2 "	Solid		24.35	
4603	200	125-250	3	2	2 "			44.55	
4803	400	125-250	3	2	2 "			93.00	





# ARROW

## RECEPTACLES & PLATES

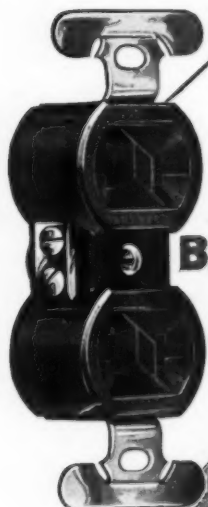
*for the  
show  
part  
of your  
wiring  
jobs*

These BAKELITE Convenience Outlets have a rich, attractive appearance pleasing to "live with". Your customers appreciate their modern design and distinctive beauty.

Finding Grooves which really work—make it easier to insert plugs in awkward places down behind tables, chairs or sofa. Plug prongs pressed against face of outlet slip into place by following contour of grooves, even in the dark.

BAKELITE Plates match the all-Bakelite Receptacles. Two styles of plate:—one with art border and vertical-ribbed surface; the other with plain border and matte surface. You can see how they'll add to the "attraction value" of modern interiors.

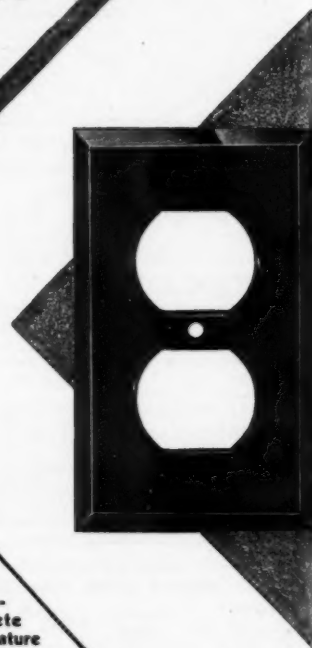
Entire unit is moisture-proof; back, body and face. No moisture absorption to cause trouble on concrete jobs or in damp places. Every feature for your convenience as well as your customers'.



**ALL  
BAKELITE**

Cat. No.  
1913-G

NEW 4-screw receptacle makes wiring easier. Has two large-head, No. 8 binding screws on each side. Reinforced yoke withstands strong pressure forward or back, helps in quick, accurate alignment of receptacle. One-piece contacts, with jaws that grip either tandem or parallel-blade plugs on both sides of blades, make broad, positive electrical connections.



# ARROW ELECTRIC DIVISION

THE ARROW - HART & HEGEMAN ELECTRIC CO.

HARTFORD, CONN.

THE LIGHTING EFFICIENCY  
AND ECONOMY . . . . THAT  
MODERN INDUSTRY DEMANDS



## DURATACH GLASSTEEL DIFFUSER



DURATACH construction allows reflector, socket shell, lamp and globe to quickly screw in or out of canopy as one unit, making both mechanical and electrical connections in one operation. Easy to wire, easy to clean, and extremely economical to maintain.

THIS unit represents one of the highest developments in modern industrial illumination . . . combining the lighting efficiency of the Glassteel Diffuser with the wiring convenience of the exclusive Wheeler Duratach construction . . . Entire reflector is white porcelain enamel inside and out; it provides a highly-powered, widely-diffused light specially recommended wherever fine operations are carried on. The Duratach construction allows reflector, socket shell, and lamp to be unscrewed from canopy *as one unit*, thus assuring easier wiring and a material reduction in maintenance costs. These features give to Wheeler Duratach Glassteel Diffuser a lighting efficiency and economy unsurpassed by any other unit of its type.

## WHEELER LIGHTING

WHEELER REFLECTOR COMPANY, 275 CONGRESS STREET, BOSTON, MASS.

NEW YORK

CHICAGO

ATLANTA

CLEVELAND

Sales Offices: St. Louis, Indianapolis, Los Angeles, San Francisco, Seattle. In Canada: Canadian General Electric Co., Ltd.



## Portable Lamp Guards

Eighteen distinctly useful types of portable lamp guards. Each designed to meet a particular need and serve in a particular type of work.

Safety to workers is becoming a paramount need today. Many of the serious and costly accidents of the past could have been prevented by the proper use of **McGILL PORTABLE GUARDS**.

Today portable lamp guards such as those shown on this page are saving untold numbers of production-hours, preventing accidents, and thereby saving dollars and cents.

The McGill catalog describes in greater detail each of these practical guards, made in all sizes, prices and to meet every need.

SEND FOR YOUR COPY TODAY

*Levotier*

Pull Sockets  
Bracket Sockets  
Candle Pull Sockets  
Fixture Switches  
Conduit Box Switches  
Link Switches  
Two-Line Switches  
Two-Line Clusters

# McGILL

## MANUFACTURING CO.

*Electrical Specialties of Quality*

ESTABLISHED 1904

**VALPARAISO - INDIANA**

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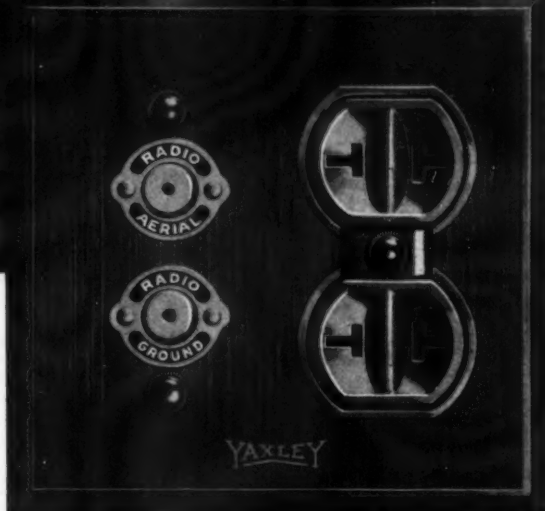
*Long*

Wire Lamp Guards  
Portable Lamp Guards  
Wall Guards  
Coloring Fluid  
Soldering Fluxes  
Lamp Changers



# RADIO OUTLETS FOR RADIO WIRING

Made by a Radio Manufacturer to go with a radio set—to meet the exacting requirements of radio extension and control and to conform with the most rigid specifications of standard electrical installation.



*Special plates in any finish desired; with individual decorations and markings for exclusive installations*

## YAXLEY

No. 241

### Radio Electric Outlet

*With Distinctive Selling Features*

- Listed as Standard by Underwriters' Laboratories
- An Extra Electrical Receptacle for Attaching Lamp or Other Appliance
- Proper Separation of Aerial and Ground
- Proper Separation of Radio and Electrical Elements
- Elimination of Danger of Making Wrong Connections
- Convenience and Safety in Grouping All Connections Compactly with One Wall Plate
- All Parts Carried on Mounting Strap with Ears for Fastening to Standard Wall Box or Plaster Lath
- Standard Wall Plates Match Other Electrical Outlets

Send for Radio Convenience Outlet Catalog

# YAXLEY MFG. CO.

1528 West Adams Street,  
Chicago, Illinois

RADIO CONVENIENCE OUTLETS FOR EVERY RADIO NEED  
RHEOSTATS—VOLUME CONTROLS—RESISTANCES—JACKS—PHONE PLUGS—SWITCHES

### MAIN ENTRANCE SWITCHES—Continued

Single Phase and D. C.	Amps.	Volts	Poles	Blades	Fuses	Neutral	Accessible Fuses	Price
2230	30	250	3	3	3 NEC	None		\$10.40
1830	60	250	3	3	"	"		19.10
1930	100	250	3	3	"	"		28.70
4630	200	250	3	3	"	"		44.50
4830	400	250	3	3	"	"		101.00

METER SERVICE SWITCHES						
Single Phase and D. C.					Accessible Fuses	
1451	30	125	2	1	Plug Solid	\$ 3.80
1412-1212	30	125	2	2	" None	4.25
1423-1223	30	125-250	3	2	" Solid	4.75
2251	30	125	2	1	1 NEC	4.15
2212-2223	30	125 or 250	2 & 3	2	" None & Solid	5.05
1851	60	125	2	1	1 Solid	14.75
1812-1842	60	125 or 250	2	2	" None	15.65
1843	60	125-250	3	2	" Solid	16.50
1951	100	125	2	1	1	24.35
1912-1942	100	125 or 250	2	2	" None	24.35
1943	100	125-250	3	2	" Solid	26.10
4643	200	125-250	3	2	"	51.75
4843	400	125-250	3	2	"	109.15

POLYPHASE								
2234	30	250	3	3	3	NEC	None	\$11.25
1834	60	250	3	3	3	"	"	20.85
1934	100	250	3	3	3	"	"	30.48
4634	200	250	3	3	3	"	"	60.65
4834	400	250	3	3	3	"	"	129.38

CHANNEL BANKING TYPE										Meter Service & Main Entrances
All 30 Amp.			Acces. Fuses				No Test			
Volts	Poles	Blades	Fuses	Neutral	Number	Price	Number	Price		
125-250	3	1	2	Plug Solid	1451T	\$4.25	1450T	\$4.05		
125	2	2	2	2	1423T	\$3.20	1403T	\$3.05		
125	2	2	2	None	1412T	4.70	1402T	4.55		
125	2	1	1	NEC Solid	2251T	4.55	2250T	4.60		
125	2	2	2	None	2212T	5.25	2202T	5.25		
125-250	3	2	2	Solid	2223T	5.55	2203T	5.25		

METER SERVICE SWITCHES							
Single Phase and D. C.	Amps.	Volts	Poles	Blades	Fuses	Neutral	Scaled Fuses
182	60	250	2	2	2 NEC	None	\$ 9.18
181	60	125-250	3	2	2	Solid	9.58
112	100	250	2	2	"	None	15.65
111	100	125-250	3	2	"	Solid	16.50

SERVICE FUSES DEAD WITH SWITCH OPEN						
38	30	125	2	1	1 Plug Solid	\$ 2.65
238	30	125	2	1	1 " "	4.00
X360	30	125	2	1	1 " "	3.45
X362	30	125	2	1	1 " "	4.45
272	30	125	3	2	2 " None	4.30
271-292	30	125-250	3	2	2 " Solid	4.30
3351	30	125	2	1	1 NEC	4.05
2312	30	250	2	2	2 " None	4.35
2323	250	250	2	2	2 " Solid	4.55
2051	60	125	2	1	1 " "	12.00
2042	60	125 or 250	2	2	2 " None	13.50
2043	60	125-250	3	2	2 " Solid	14.35
2151	100	125	2	1	1 " Solid	21.75
2142	100	125 or 250	2	2	2 " None	21.75
2143	100	125-250	3	2	2 " Solid	23.45
4743	200	125-250	3	2	2 " "	44.45
4943	400	125-250	3	2	2 " None	101.00

POLYPHASE						
2334	30	250	3	3	3	NEC None \$ 9.83
2034	60	250	3	3	3	" " 17.46
2134	100	250	3	3	3	" " 26.93
4734	200	250	3	3	3	" " 49.71
4934	400	250	3	3	3	" " 113.06

MAIN ENTRANCE SWITCHES						
Single Phase and D. C.						
172	60	250	2	2	2 NEC	None \$ 9.15
171	60	125-250	3	2	2 "	Solid 9.30
102	100	250	2	2	2 "	None 15.60
103	100	125-250	2	2	2 "	Solid 15.60

110	100	125-250	3	2	2	Sand	16.50
<b>POLYPHASE</b>							
2330	30	250	3	3	3	NEC None	\$ 9.10
2030	60	250	3	3	3	" "	15.60
2130	100	250	3	3	3	" "	25.10
<b>INDUSTRIAL TYPE SWITCHES</b>							

250 Volts		Quick Make & Break					
Amps.	Poles	Blades	Fuses	Access. Fuses Number	Sealed Fuses Price	Fuses Number	Price
30	2	2	2	9532	\$13.65	8532	\$ 8.45
30	3	3	3	9533	15.50	8533	9.75
60	2	2	2	9562	14.65	8562	8.90
60	3	3	3	9563	18.55	8563	10.25
100	2	2	2	9512	25.00	8512	12.45
100	3	3	3	9513	28.80	8513	15.55

<b>OUTDOOR METER SERVICE SWITCHES</b>		
30 Amp.	3 Pole Solid Neutral Outdoor or Weatherproof .....	\$15.1
60       "	"     "                  "                  "                  "              .....	20.4
100     "	"     "                  "                  "                  "              .....	41.2

**EXTRA END WALLS—SHUTTERS—TRIMS—ETC.**

		Wadsworth			Type of Trim		Knock-Mete
		Flat	Extended	Shutter	Shutter	out & Shut-	
For	30 Amp. 125 Volt Switches	\$ .30	\$ .50	\$ .30	\$ .30	ter	
"	30 " 250 "	.60	.65	.50	.35		
"	60 " 250 " 2 Pole	.65	.83	.65	.45	2	
"	60 " 250 " 3 "	.75	.90	.75	.50		
"	100 " 250 " 2 "	.82	1.00	.82	.45		
"	100 " 350 " 2 "	.90	1.10	.90	.50		
"	200 " 250 " 2 "	1.00	1.15	1.00	.50		
"	200 " 350 " 3 "	1.10	1.25	1.10	.55		

### ENTRANCE SWITCHES

30 Amp.			With End Walls	
Number	Volts	Description	2 Pole	3 Poles
630	125	1 Blade—1 Plug Fuse S. N.	\$1.60	
231-230	125-250	2 " —	1.70	\$2.40
641-62	125	For 1 HP—250 V.—AC & DC Motors.	1.80	
643	230	3 Blades 3 Cartridge Fuses.		3.20
647	125-250	" " " S. N.		2.50
830	125-250	2 " " Sealed Fuses S. N.		4.00
831	125-250	2 Plug Sealed Fuses S. N.		2.25
Accessible Main Fuses			With Branches Combined	
780-782	125-250	2 Plug Fuses 2-2 Wire Branches.	Without End	Walls
781-783	125-250	4 " 4-2 " "	\$5.80	\$6.80
784	125	" 1-2 " "	6.55	7.55
785	125	4 " 2-2 " "	6.60	
			7.30	

ACCESSIBLE MAIN FUSE TYPE AA									
Amps.	Poles	Fused for	Neutral	Without End Walls					
				Meter Test Type		Test Type			
				No.	Price	No.	Price		
30	2	1 Plug	Fused	755	\$3.25	754	\$3.05		
30	2	1 Cart.	"	738	4.20	740	3.60		
30	2	2 Plug	"	748	3.70	752	3.35		
30	2	2 Cart.	"	737	4.50	757	4.25		
30	2	2 Plug	Solid	756	4.20	753	3.75		
30	3	2 Cart.	"	742	4.45	758	4.25		
120	2	1 Plug	Fused	776	3.25	774	3.05		
120	3	2 Plug	Solid	775	4.20	779	3.70		
120	3	2 Cart.	"	777	4.45	778	4.25		
60	2	1 Cart.	Fused	768	14.20	773	15.05		
60	3	2 Cart.	"	764	15.05	762	14.20		
60	3	2 Cart.	Solid	765	15.95	763	15.05		
100	2	2 Cart.	Fused	709	23.85	708	22.10		
100	2	2 Cart.	"	718	23.85	716	23.00		
100	3	2 Cart.	Solid	719	25.60	717	23.85		

POLYPHASE ENTRANCE & SERVICE				
Entrance Amps.	Nos.	Description	With End Wall 3 Wire 4 Wire	With End Wall 3 Wire 4 Wire
30	790-2	Three Legs Fused.....	\$11.00	\$16.00
60	790-9	Four Wire Solid Neutral.....	19.40	20.00
100	710-12	All 3 Pole 3 Phase.....	29.05	29.95
200	730-22		44.55	51.85
Service				
30	791-3	Three Legs Fused.....	\$11.60	\$16.00
60	767-8	Four Wire Solid Neutral.....	20.70	23.80
100	711-14	All 3 Pole 3 Phase.....	30.80	33.25
200	721-23		51.85	90.75

ENTRANCE SWITCH	
Range and Lighting	125-250 Volt
No. 260 Two Meter Combination Range and Light Switch 60A. Range	
Service—30A. Light Service.....	\$7.80

"UNISAFITI" (Universal Standard Switches) All 30 Amps.						
Number	Pole	Fuse Single	Neutral	Branches & Fusing 2-2-Wire	2 Fuses	Price
235B	2	"	"	2-2	"	\$3.25
236	2	"	"	4-2	"	4.30
237	3	Two	Solid	1-2	"	3.75
237	2	"	"	1-2	"	3.75
237	3	"	Solid	2-2	"	3.75
238	3	"	Solid	4-2	"	4.85
238	2	"	"	2-2	4	4.85

METER SERVICE SWITCHES						
Fuses & Blades Dead		Sealed Fuses		Without End Walls		
Amp.	Volts	Description	No.	Price	No.	Price
30	125	For Plug Fuses	332	\$ 2.20	333	\$ 3.35
30	250	For Cart. Fuses	334	12.45	335	13.75
60	250	For Cart. Fuses	368	12.75		
<b>Fuses Alive</b>						
30	125	For Plug Fuses	330-1	\$ 2.65	333	\$ 3.35
30	250	For Cart. Fuses	130	2.65	333	3.35
60	250	" " "	360	361.45		5.00-3
100	250	" " "	310	15.05	133-4	1.95

	100	200	300	400	500	600	700	800	900	1000
<b>SEALABLE MAIN FUSES</b>										
Polyphase—3 Wire										
										Without End Wires
					30 Amp.	60 Amp.	100 Amp.			
3 Pole-3 Blades-For Cart. Fuses 250V.	332	\$11.10	362	\$16.90	311	\$26.50				

Fusible Description		TYPE C-SWITCHES				Quick Break			
Amps.	All Cart. Fuse	2 Pole		3 Pole		4 Pole			
		No.	Price	No.	Price	No.	Price		
30	Solid Neutral 125-250	632	\$2.65	633	\$3.75	634	\$6.95		
60		661	6.60	663	7.45	667	9.60		
60		465	6.60	662	7.10	663B	7.85		
100	Solid Neutral 125-250	611	10.50	613	12.80	610	19.50		
100		507	10.50	615	11.60	614	19.50		
100		...	...	612	12.80	613B	13.50		
200	Solid Neutral 125-250	621	18.50	623	22.75	629	40.85		
200		...	...	625	19.20	...	...		
200		...	...	622	22.75	623B	23.70		

END WALLS, PLATES & TROUGHS & ADAPTORS			
	30	60	100
	Amp.	Amp.	Amp.
End Wall.....	\$ .30	\$ .65	\$1.00
Shutter.....	.15	.25	.25
Trough.....	.30	.30	.30
Trough Cover & Adapting Slide.....	.15	.15	.15
Trough 2' 3' & 4'.....	.15	.15	.40
" 5'.....	.....	.....	.45
" 6'.....	.....	.....	.50
" 7'.....	.....	.....	.55
" 8'.....	.....	.....	.60
" 9'.....	.....	.....	.65
" 10'.....	.....	.....	.75

## Switches

## Tape

## Diamond E Switches

## SMALL ENTRANCE SWITCHES, 30 AMPS.

Volts	For Fuses	Description	2 Pole	3 Pole
125	Plug	All Fused	P-2 \$1.65	P-3 \$2.75
125	Plug	Ground Neutral	P-2S 1.65	P-3S 2.25
250	Cartridge	All Fused	C-2 2.25	C-3 4.00
250	Cartridge	Ground Neutral	.....	C-3S 2.90

## ALL-N-ONE SWITCHES

Live Front	Double Fuse	Dead Front	Single Fuse
No. Circuits	Price	No. Circuits	Price
A-2 2	\$3.45	AD-3 3	\$ 5.40
A-3 3	3.90	AD-4 4	5.85
A-5 5	4.15	AD-5 5	6.75
A-7 7	6.60	AD-6 6	7.95
A-9 9	6.95	AD-8 8	9.30
		AD-10 10	11.25

## RANGE &amp; WATER HEATER SWITCHES

## 60 Amp.—125 Volts

No. 501	No. 502	No. 503	No. 504	No. 505	No. 506	No. 507
\$9.90	\$15.25	\$23.00	\$26.75	\$20.25	\$8.90	\$13.90

## MOTOR STARTING SWITCHES

MS-1 30 Amp. 3 Pole 220 Volts Quick Make & Break Toggle.....	\$6.00
C-3P 30 Amp. 3 Pole 250 Volts Not Toggle.....	7.10

## SAFE LINE SERVICE SWITCHES

No. 904 Single Pole 4 Circuits with Transformer.....	\$7.85
" " " " without Transformer.....	6.60

## INDUSTRIAL TYPE

## Quick Break—Single Throw—Fused Bottom

Amp.	No.	Price	250 Volts	No.	Price
30	3022	\$ 5.40	3032	3042	\$ 7.90
60	6022	8.10	6032	6042	11.65
100	10022	11.65	10032	10042	24.10
200	20022	18.25	20032	20042	39.75
400	40022	44.85	40032	40042	87.20
600	60022	78.00	60032	60042	131.10

Amp.	No.	Price	500 Volts	No.	Price
30	3025	\$ 9.00	3035	3045	\$ 12.45
60	6025	9.90	6035	6045	13.30
100	10025	13.30	10035	10045	26.60
200	20025	26.60	20035	20045	43.20
400	40025	68.00	40035	40045	116.20
600	60025	96.30	60035	60045	167.70

Amps.....	30 Amp.	60 Amp.	100 Amp.	200 Amp.
Number.....	3026	6026	10026	20026
Price.....	\$15.30	\$15.80	\$25.00	\$38.60

## Not Fused—Quick Break

Amps.	Pole	Single Throw—No Fuse	Double Throw—No Fuse
		Volts	Volts
		Price	Price
30	2	250 DC 3022N \$ 5.00	3022DN \$ 10.80
30	3	250 DC 3032N 6.30	3032DN 12.45
30	2	500 AC 3025N 8.65	3025DN 13.15
30	3	500 AC 3035N 8.10	3035DN 16.60
60	2	250-500 6025N 8.10	6025DN 13.15
60	3	250-500 6035N 8.35	6035DN 16.60
100	2	250-500 10025N 11.50	10025DN 24.90
100	3	250-500 10035N 11.25	10035DN 30.70
200	2	250-500 20025N 17.00	20025DN 34.85
200	3	250-500 20035N 20.75	20035DN 50.60
400	2	250-500 40025N 49.80	40025DN 99.60
400	3	250-500 40035N 58.00	40035DN 132.80
600	2	250-500 60025N 83.00	60025DN 141.00
600	3	250-500 60035N 99.60	60035DN 168.50

## S-SUNDRIES

## WOOD SCREWS—Flat Head

Size	Price Per Doz.	Size	Price Per Doz.	Size	Price Per Doz.
1/8"x8 & Smaller.....	\$ .05	1 1/4"x12.....	\$ .07	2 1/4"x10.....	\$ .08
1/8"x8.....	.05	1 1/4"x6.....	.07	2 1/4"x12.....	.09
1/8"x8.....	.05	1 1/4"x8.....	.07	2 1/4"x8.....	.07
1/8"x8.....	.05	1 1/4"x10.....	.07	2 1/4"x8.....	.08
1/8"x8.....	.05	1 1/4"x12.....	.07	2 1/4"x10.....	.09
1"x8.....	.05	2"x8.....	.08	2 1/4"x12.....	.10
1"x8.....	.05	2"x10.....	.08	3"x8.....	.09
1 1/4"x8.....	.06	2 1/4"x12.....	.09	3"x10.....	.10
1 1/4"x8.....	.06	2 1/4"x6.....	.07	3"x12.....	.13
1 1/4"x10.....	.07	2 1/4"x8.....	.07	3"x14.....	.15

NOTE—For Round Head Wood Screws Add 30% to above prices.

## MACHINE SCREWS—Round or Flat Head

Size	Price per Dozen	Size	Price per Dozen
	Iron		Brass
1/8"x1/4.....	\$ .05	10/24 x 1/4.....	\$ .06
1/8"x1/4.....	.05	10/24 x 1/2.....	.06
1/8"x1/4.....	.05	10/24 x 1/4.....	.06
1/8"x1/4.....	.05	10/24 x 1/2.....	.07
1/8"x1/4.....	.05	1/4 x 20-1/4.....	.08
1/8"x1/4.....	.05	1/4 x 20-1/2.....	.09
1/8"x1/4.....	.05	1/4 x 20-1/4.....	.10
1/8"x1/4.....	.05	1/4 x 20-1/2.....	.12

NOTE—For Machine Screws with Fillister Head add 25% to above prices.

Electrical Contracting, April, 1931

LAG SCREWS  
Square Heads or Coach Screws

Length	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	6"
1/4 Black.....	\$ .03	\$ .03	\$ .04	\$ .04	\$ .04	\$ .04	\$ .04	\$ .05
1/4 Black.....	.03	.04	.04	.04	.05	.05	.05	.06
1/4 Black.....	.04	.04	.05	.05	.06	.06	.07	.07
1/4 Black.....	.05	.05	.06	.07	.07	.07	.08	.09
1/4 Galv.....	.03	.03	.04	.04	.05	.05	.05	.06
1/4 Galv.....	.04	.04	.04	.04	.05	.05	.06	.06
1/4 Galv.....	.06	.06	.07	.07	.08	.08	.09	.10

## STRAPS—CLIPS OR CLAMPS

## For Pipe

Without Screws	1 1/2"	2"	2 1/2"	3"
Galvanized Straps, 2 Hole.....	\$ .01	\$ .01	\$ .01	\$ .01
(Per Pound \$ .20) No. Straps per Lb.....	45	40	35	30
Light Steel Straps, 1 Hole.....	.04	.05	.06	.08
Mall. Iron Clamps, 1 Hole.....	.06	.07	.08	.11
P & S Conduit Clamps with Bolts Series 1400.....	.10	.14	.18	.20

Without Screws	1 1/2"	2"	2 1/2"	3"
Galvanized Straps, 2 Hole.....	\$ .02	\$ .04	\$ .05	\$ .06
(Per Pound \$ .20) No. Straps per Lb.....	12	7	5	4
Light Steel Straps, 1 Hole.....	.25	.45	.65	.85
Mall. Iron Clamps, 1 Hole.....	.25	.45	.65	.85
P & S Conduit Clamps with Bolts—Series 1400.....	.25	.45	.65	.85

## SOLDER

40-60	50-50	Resin or Acid	Ribbon	Allen
Bar or Wire	Bar or Wire	Core	30-70	Alumi-Flux
Per Pound.....	\$ .65	\$ .70	\$ .85	\$ .75
Per Ounce.....	.05	.05	.08	.07

## SOLDER PASTE

Make	2 oz. Cans	2 oz. Tubes	4 oz. Cans	Half Pound Cans	One Pound Cans
Allen.....	\$ .25	\$ .40	\$ .50	\$ .70	\$ 1.25
Burnley.....	.20	.30	.40	.60	.85
Crescent.....	.25	.40	.50	.70	1.00
G. E.....	.25	.40	.50	.70	1.50
Highland.....	.40	.60	.80	1.00	1.65
Nokorode.....	.25	.40	.50	.70	1.50
Star.....	.25	.40	.50	.70	1.00

## SOLDERING SALTS

	1/2 Lb.	1 Lb.
Burnley.....In cans each.....	\$ .40	\$ .75
Yager.....In Bottles each.....	.75	1.00
McGill Crescent.....In Bottles each.....	.85	1.00
Nokorode.....In cans each.....	.75	1.00
Allen.....In Bottles each.....	.75	1.00

## SOLDER STICKS

	Price
Burnley.....	\$ .25
Samson.....	.30
Allen.....	.40
Crescent.....	.25
GE.....	.25
Star.....	.25

## FIXTURE STUDS

	1/2"	3/4"
Four Prong Fixture Studs Less Bolts.....	\$ .10	\$ .15
Bolts Extra.....	.01	.01
No Bolt Fixture Studs.....	.10	.15

## STAPLES

Staples Insulated Nails Per Dozen.....	\$ .05
Leather Nail Heads Per Dozen.....	.05
Milonite Insulated Nails Per Dozen.....	.05

## TAPE

## FRICTION TAPE

	Per Pound	Per Half Pound	Per 2 Ounce	Per 1 Ounce	Per Foot
Amazon Friction.....	\$ .65	\$ .35	\$ .10	\$ .05	\$ .01
Adhere.....	.55	.30	.10	.05	.01
Buildox.....	.70	.40	.10	.05	.01
Clifton.....	.65	.35	.10	.05	.01
Dutch Brand.....	.65	.35	.10	.05	.01
G. E. 361.....	.55	.30	.10	.05	.01
Grimshaw.....	2.00	1.00	.25	.15	.08
Holdrite.....	1.00	.50	.15	.10	.02
Holdrite U. S.....	.55	.30	.10	.05	.01
Johns Manville Armature.....	1.75	.90	.20	.10	.02
" " Jomasco.....	1.00	.55	.15	.10	.02
" " White.....	1.35	.70	.20	.10	.02
" " No. 3 Now No. 5.....	.55	.30	.10	.05	.01
" " No. 6 " " 40.....	.50	.25	.10	.05	.01
Manson.....	1.10	.60	.15	.10	.02
O. K.....	.60	.30	.10	.05	.01
P & B.....	.60	.35	.10	.05	.01
Paragon.....	1.65	.85	.20	.10	.02
Security.....	.45	.25	.10	.05	.01

## RUBBER TAPE

	\$0.95	\$0.50	\$0.15	\$0.10	\$0.04
Amazon Rubber.....	1.00	.50	.15	.10	.04
Alpha.....	.65	.35	.10	.05	.08
Clifton.....	.65	.35	.10	.05	.08
Dutch Brand.....	.55	.30	.10	.05	.08
G. E. 362.....	1.00	.50	.15	.10	.04
Holdrite.....	.60	.30	.10	.05	.08
Imperial.....	1.35	.75	.20	.10	.04
Okonite.....	.50	.25	.10	.05	.08
Relio U. S.....	.55	.30	.10	.05	.08
Security.....	.65	.35	.10	.05	.08
U. S. Rubber.....	.75	.40	.10	.05	.08
Twin Tape Rubber & Friction.....	.90	.50	.15	.10	.04
USCO Westinghouse.....					



## COUCH TELEPHONES

VESTIBULE TYPE	
No. 74 Armored Cord Receiver Type.....	\$25.00
No. 74A Swing Arm Receiver Type.....	37.30
No. 74C Cordless Loud Speaker Type.....	30.75
Above prices are for telephones complete but do not include for any call buttons.	
Add for buttons—Janitor Calling Buttons if fitted.....	\$ .95
Add for Each Suite Calling Button.....	.95

## SUITE TELEPHONES

Series 2800 to 2849 or 1900 to 49	Page 22 Bulletin No. 89 S. H. Couch Co.
Number of Buttons.....	0 1 2 3 4
Price Ea. Surface or Flush \$11.40	\$11.40 \$12.45 \$13.60 \$14.60

## TELEPHONE CABLES

Braided Type "B"		Lead Covered Type "L"	
Number of Conductors	Number Price per Foot	Number Price per Foot	Number Price per Foot
8	B-8 \$ .14	L-8	\$ .18
12	B-12 .15 1/2	L-12	.21
16	B-16 .18	L-16	.27
21	B-21 .22	L-21	.29
25	B-25 .24	L-25	.32
31	B-31 .27	L-31	.39
37	B-37 .30	L-37	.44

## EDWARDS TELEPHONES

Vestibule Type	
No. 321 and 397 Armored Cord Receiver Type.....	\$25.00
No. 322 and 396 Cordless Loud Speaker.....	30.75
Above prices are for telephones complete but do not include any call buttons.	
Add for each Call Button.....	\$0.95
Mail Box.....	3.25

## Apartment Telephones

No. 3322 and 3352 Surface Wall Type Watch Case Receiver.....	\$12.50
No. 3332 and 3362 " " " Long Hand ".....	16.75
No. 3342 and 3372 Flush " " Watch Case ".....	12.50
Above prices are for telephones complete with two push buttons—Add \$1.10 for 3 Buttons.	

## TIME SWITCHES

## ACE TIME SWITCHES—SELF WOUND

All AC or DC On and Off Types		Sgl. or Dble. Pole—100 to 130 Volts—Up to 60 Cycle	
		No. 35 \$45.00	No. E4 \$47.50
		No. E4 \$47.50	No. E6 \$50.00
Two Circuit Types		All Dble. Pole—20 Amp.—125 Volts Each Circuit	
		A2, B2, C2, E2, G2.....	\$45.00

## GENERAL ELECTRIC TIME SWITCHES

TYPE T-8C—Sgle. Pole 15 Amp. Indoor Service		115 V. 230 V.	
Type	Cat No.	Price	Price
T-8C1.....	34:979 to 984.....	\$22.00	\$23.00
T-8C3.....	34:985 to 990.....	23.00	24.00
T-8C4.....	34:991 to 996.....	22.00	23.00
TYPE T-9—Dble. Pole 20 Amp. In or Outdoor Service		60 and 50 Cycle..	
		10:637-40.....	40.00 41.00
		10:641-44.....	40.00 41.00
Extra for Cutouts.....		4.00	4.00

## HARTFORD TIME SWITCHES

Type	B Double Pole.....	10 Amp. \$36.00	20 Amp. \$39.00	35 Amp. \$42.00	50 Amp. \$50.00
C & D Double Pole.....		39.00	42.00	47.00	52.00
G Apt. Hall Light Control D. P.....		38.00		60.00	

## HOROLECTRIC TIME SWITCHES

Type	Wound Capacity	Description	Price
E	Elec. 60 Amp.	Double Pole.....	\$32.00
H	Hand 60 "	Double Pole.....	24.00
EW	Elec. 60 "	Same as Type E & H on a Mounting Plate in	42.00
HW	Hand 60 "	Weatherproof Box.....	34.00
EO	Elec. 60 "	With Automatic Cutout for omitting operation	38.00
HO	Hand 60 "	on Sunday or any days desired.....	30.00
EOW	Elec. 60 "		48.00
HOW	Hand 60 "		40.00
ET	Elec. 60 "		35.00
HT	Hand 60 "	Equipped for Four Operations per day, Two	27.00
ETW	Elec. 60 "	"Ons" and Two "Offs" in 24 hours.....	45.00
HTW	Hand 60 "		37.00
ETO	Elec. 60 "	With automatic day cutout and four operations	42.00
HTO	Hand 60 "	per day.....	34.00
EM	Elec. 30 "		38.00
HM	Hand 30 "	Single Pole, Double Throw, for operating	30.00
EMW	Elec. 30 "	large open circuit switches.....	48.00
HMW	Hand 30 "		40.00
EC	Elec. 30 "		35.00
HC	Hand 30 "	Single Pole, with special contact for connecting	27.00
ECW	Elec. 30 "	automatic electric time motor.....	45.00
HCW	Hand 30 "		37.00
E—Electrically Wound W—In Weatherproof Box			
M—Single Pole, Double Throw H—Hand Wound			
O—With Automatic Day Cutout T—For Four Operations per Day.			

## RELIANCE &amp; RACINE SWITCHES

Racine Type 1R-2R.....	10 Amp. \$19.50	20 Amp. \$23.00	30 Amp. \$26.00	50 Amp. \$36.00
Reliance Type 10-20-30-50.....	23.00	30.00	\$32.00	\$36.00
Reliance Type 15 Triple Pole.....		32.00		
Apartment House Types A-B-C-D-E-F-G.....	30.00	30.00		

## SANGAMO TIME SWITCHES

All 20 Amp. 115 V.—15 Amp. 230 V.

		A. C. 115-230V	D. C. 115 Volt	D. C. 230 Volt
T or TC 1	Single Pole Single Throw	\$40.00	\$45.00	\$47.50
T or TC 1	" " Double " "	42.50	47.50	50.00
T or TC 2	Double " Single " "	45.00	50.00	52.50
T or TC 2	" " Double " "	47.50	52.50	55.00

## TORK TIME SWITCHES OR CLOCKS

Description	Indoor	Outdoor	Switchboard
Single Pole 15 Amp. 125 Volt	\$115H \$20.00	\$215H \$27.50	\$015H \$17.50
Double " 30 " 250 "	\$130H 25.00	\$230H 32.50	\$030H 22.50
Single " Double Throw	\$166H 25.00	\$266H 32.50	\$066H 22.50

## Contactor and Clock Combination

\$76002H—60 Amp. 2 Pole AC.....	\$50.00	\$75062H—60 Amp. 2 Pole DC.....	\$70.00
\$76102H—100 " " AC.....	75.00	\$75102H—100 " " DC.....	125.00

## ZENITH TIME SWITCHES

Model	10 Amp.	20 Amp.	30 Amp.	60 Amp.	100 Amp.	200 Amp.
\$110—8 Day.....	\$20.00	\$23.00	\$25.00			
Electric Wound—AC.....		40.00				
—DC.....		45.00				
Astronomic Dial—AC.....	79.00					
—DC.....	84.00					
Remote Con. Swbs.—AC.....			16.50	\$22.50	\$42.50	\$75.00
—DC.....			23.50	38.00	55.00	93.00

## TRANSFORMERS

## BELL &amp; TOY TRANSFORMERS

Name		Style	Watt	Secondary Volts	50 to 133 Cycle No.	Price	25 to 40 Cycle No.	Price
EDWARDS		Steel Clad Bell	25	Single	86	\$ 1.25	86	\$ 1.45
			25	Three	86T	1.55	86T	1.75
		Porcelain Bell	25	Single	87	1.55	87	1.75
		Out. Box Bell	25		86ER	1.55	86ER	1.75
		Heavy Duty	50	8-16-24	88	4.25	88	4.65
		" " "	75	"	89	6.40	89	7.00
		" " "	100	"	90	7.40	90	8.15
		Toy	50	3 to 18	870	3.50	870	4.20
		" " "	75	3 to 24	871	5.85	871	7.00
		" " "	100	2 to 30	872	8.75	872	10.50
G. E.		Bell Residence		12 Volt	2332	1.00	192340	1.45
		Box Type		" "	2488	1.40	2490	1.75
		Heavy Duty	50	8-16-24	2334	4.85	2339	7.00
		" " "	100	10-20-30	2334	6.95	2340	11.20

JEF- PERSON	Wizard	25	10 Volt	230-101	1.00	230-102	1.15
	Nucode	25	10 Volt	230-111	1.40	230-112	1.65
	Tri-Volt	25	6 to 18V.	230-121	1.40	230-122	1.65
	Porcelain			230-131	1.40		
	Little Jeff Toy	50	5 1/2-13	535-101	3.65	535-102	4.30
	Midjet Toy	75	5 1/2-22	535-121	4.45	535-122	5.50
	Model 2 Toy	100	5 1/2-23	535-131	6.75	535-132	8.40
	Model 3 Toy	150	1-30	535-141	8.65		
	Heavy Duty A	50	6 to 20	231-101	5.10	231-102	7.25
	" " B	75	6 to 20	231-111	7.70	231-112	10.30
" " G	100	6 to 24	231-171	8.90	231-172	10.00	
" " E	250	8 to 24	231-141	21.00	231-142	26.40	
.....							
	Blue Bell	10	8 Volt	6166	1.00		
	Tri-Volt	20	6 to 16	6163	1.40		
	Box Type	10	8 Volt	7166	1.40		
	Porcelain Case	10	8 Volt	4166	1.40		
KIL- LARK	"Black Bell"—H. D.	50	6-14-20 V.	816-50	5.00		
	" " "	75	6-14-20 V.	816-75	7.50		
	" " "	100	6-12-18-24	916-100	8.90		
	"Box Bell" in Box	10	8 Volt	9166	2.30		

RICH- ARDS	Mold. Single	25	10 Volts	221	1.40		
	Mold. 3 Circuit	25	6 to 18V.	222	1.55		
	Steel Sate. Cir.	25	10 Volts	225	1.25	235	1.35
	Steel 3 Circuit	25	6 to 18V.	226	1.40		
	Cov. Ty'e Sgle. Cir.	25	10 Volts	227	1.40	237	1.55
	Cov. Type 3 Cir.	25	6 to 18V.	228	1.55		
.....							
STAN- DARD	Porcelain Clad	25	Single	200D1	1.65	201G1	2.10
		25	6-9-15	203D1	2.10	204G1	2.55
	Steel	15	Single	205S	1.25	206SG	1.40
		15	6-9-15	207S	1.45	208SG	1.75
	Heavy Duty Porc.	50	6-12-18	209HD1	6.45	210HE1	7.20
	Steel Clad "A"	100	8-16-24	212EHD	7.75	213EHE	10.30
	" " "B"	50	6-12-18	300A	6.20	301A	6.75
	" " "C"	100	6-12-18-24	302C	9.25	303C	10.75
	" " "E"	200	6-12-18-24	304C	17.50	305C	20.65
	" " "F"	300	6-12-18-24	306E	21.45	307E	25.75
	" " "F"	500	6-12-18-24	308F	38.90	309F	36.00

STAN- LEY	TB H'vy Duty	50	8-16-24	501	4.25	502	4.75
PATTER- SON	TB H'vy Duty	75	8-16-24	751	6.40	752	7.00
	TB H'vy Duty	100	8-16-24	1001	7.40	1002	8.15
	TB H'vy Duty	150	8-16-24	1501	9.10	1502	10.00

NOTE: For 220 Volt Transformers add 20% to above prices.

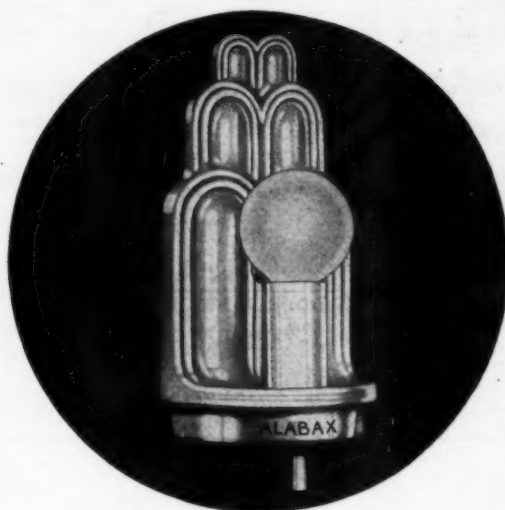


# P & S ALABAX

## NEW DESIGNS



AL-10000



AL-10004

New motifs in Porcelain Brackets, which will lend themselves harmoniously to living room, dining room, sun room and bedroom decorations. Design, style and workmanship of the highest quality are embodied in the manufacture of these pieces.

They are available in colors and their finish is permanent. Refinishing is never necessary. A cloth used while dusting keeps all ALABAX pieces ever new.

### CATALOG DATA

Cat. No.	List Price White	Description	Carton Quantity	Std. Pkg. Quantity	Length of Back Inches	Max. Width of Back Inches
AL-10000	\$3.75	Pull Chain	2	10	8 $\frac{7}{8}$	4 $\frac{3}{4}$
AL-10001	3.45	Like AL-10000, except Keyless	2	10	8 $\frac{7}{8}$	4 $\frac{3}{4}$
AL-10004	4.80	Pull Chain with Convenience Outlet	2	10	8 $\frac{7}{8}$	4 $\frac{1}{4}$
AL-10005	4.35	Like AL-10004, except without Convenience Outlet	2	10	8 $\frac{7}{8}$	4 $\frac{1}{4}$
AL-10006	4.50	Like AL-10004, except Keyless	2	10	8 $\frac{7}{8}$	4 $\frac{1}{4}$
AL-10007	4.05	Like AL-10005, except Keyless	2	10	8 $\frac{7}{8}$	4 $\frac{1}{4}$

Lamps and Glassware Not Supplied with ALABAX Lighting Units

Manufactured by

**PASS & SEYMOUR, INC.**

Division C

SOLVAY STATION

SYRACUSE, N. Y.

"Those Who Know the Facts, Insist on ALABAX"

Write for Details





#### SPECIALIZE IN REMODELING:

—The Frank Leasure Co., Inc., Chicago, do a great deal of remodeling and commercial wiring work, making a specialty of this sort of work. Shown above are John Opholt, who has been 20 years with the firm; H. E. Leasure, also 20 years with the firm and E. S. Leasure 35 years with the company.

(Continued from page 32)

There were also criminal indictments returned against 19 individuals or firms. These indictments later were nolle on the grounds that all the acts complained of by the state, had ceased, and that all objectionable practices had been abated.

"We are well satisfied with the decision," said Louis C. Kubach, Executive Secretary of the Electrical Business Association. "It supports our contention that any objectionable practices which might have been considered as attempts to 'fix' prices, were carried on only by individuals and among small, disorganized groups and without the official sanction or endorsement of the Electrical Business Association."

In the decree and memoranda of opinion, the Court states that it is a recognized economic principle that "cut throat" competition while entailing a temporary advantage to the consuming public is eventually harmful in that it usually results in the survival of the fittest and leaves the public at the mercy of the survivor, a monopoly having been effected. It is in recognition of this principle that market prices for standard articles are generally recognized as fair and reasonable, and, in many cases, essential to the best interests of the public.

"It follows, therefore," according to the Court, "that reasonable regulations



## BlueBell

### DOOR BELL TRANSFORMERS

*Justify your confidence*

Dependability is built into every one and each bears an unlimited guarantee. They are backed by 16 years' experience in building good transformers. Their selection for the job will eliminate the hazard which might occur if you just say, "Give me a door bell transformer". Listed as Standard by Underwriters Laboratories.

*Ask for them by name*

# KILLARK

ELECTRIC MANUFACTURING CO.

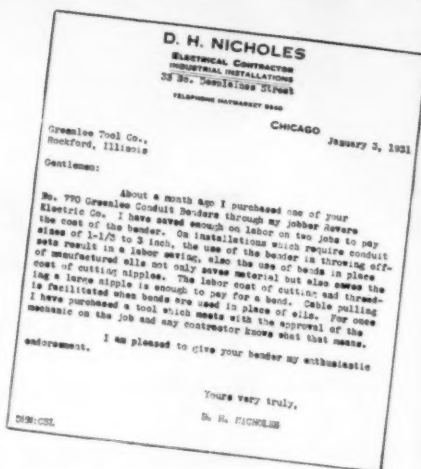
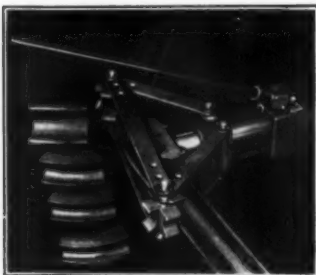
3940 Easton Avenue - - St. Louis, Mo.



## "Saved Enough Labor On Two Jobs to Pay for the Bender"

Here is another enthusiastic user of Greenlee Conduit Benders—Mr. D. H. Nicholes of Chicago, who saved enough labor on two jobs with this machine to pay for its cost. Read what Mr. Nicholes has to say about his No. 770. It explains why Greenlee Benders have been selling like hot cakes since their introduction to the electrical trade last summer.

Contractors can save money with these machines because they bend conduit swiftly and easily, leaving a



bend that is round and true with little or no distortion in the metal. Bending is accomplished by hydraulic pressure, forcing a shoe against the conduit.

A big feature of Greenlee Benders is their portability. They are light for the work they do and can easily be carried from place to place.

The No. 770 bends 1 1/4, 1 1/2, 2, 2 1/2 and 3-inch conduit and weighs 90 pounds without shoes. The No. 775 bends 2 1/2, 3, 3 1/2, 4 and 4 1/2-inch conduit and weighs 187 pounds without shoes.

These benders are priced right. You, too, can pay for these machines in a short period of time by your savings in labor costs. Write today for complete information, prices, and discounts.

**GREENLEE TOOL CO.**  
ROCKFORD, ILLINOIS

-----MAIL THIS COUPON TODAY-----

Greenlee Tool Co., Rockford, Ill.

We are interested in lowering our bending costs. Send at once complete information, prices and discounts on your Hydraulic Benders.

Name.....

Address.....

City..... State.....

My Jobber is.....

4-31

of a particular industry which do not tend to destroy or stifle competition are economically sound. By a parity of reasoning, unreasonable agreements and regulations having such a tendency are frowned upon and are illegal.

"So long as it operates within the purpose clause of the charter granted to it by the State, the Electrical Business Association is a legitimate enterprise, and every person, firm or corporation engaged in the electrical industry in the community has the right to be a member upon an equal basis of stock ownership.

"The business of collective bargaining by workmen through the instrumentality of union organizations has long been recognized as just and reasonable.

"The elimination of strikes and lock-outs with their attendant hardships upon the public through the establishment of friendly relationship between capital and labor upon a sound and reasonable contractual basis is to be encouraged. Labor cannot be used by capital as a means of enforcing agreements and regulations among members of an industry to establish fixed prices for their commodities or stifle competition in bidding or to coerce others into joining an association of such members.

"Members of the E. B. A. have the right to meet and discuss the ramifications of their industry, exchange ideas with a view to greater efficiency and service to the public, and to agree as to what constitutes reasonable prices for their commodities to the extent that such commodities are standard. But they do not have the right to stifle or restrict free competition and bidding upon construction or installation work by the allotment of contracts, by disciplining low bidders, or by any other method having a tendency to deprive the public of the benefit of free competition.

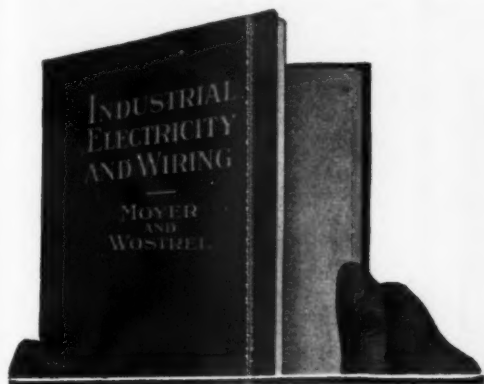
"The union has a right reasonably to promote the business interests of its members with reference to reasonable working conditions and reasonable competition, but it does not have the right to combine with capital for the purpose of enforcing fixed prices or insuring certain profits or coercing non-members to join an association of employers.

"Labor cannot be used by capital or employers as a means of enforcing



**DOES AIRPORT WIRING:**—Richard I. Seddon, Joliet, Ill., recently wired the Joliet Municipal Airport where he did a most successful job. Mr. Seddon has also completed the wiring of three high-schools.

## A "how-to" book for the practical electrician



Here is a book that offers the practical worker a thorough training in electrical wiring for every industrial application. In addition to presenting standard, economical and efficient methods for doing every type of wiring, it also offers a thorough grounding in electrical theory; in the action and application of electrical equipment; the principles of lighting and power circuits; together with much other information needed for the effective handling of this work.

## Industrial Electricity and Wiring

by JAMES A. MOYER

Director of University Extension, Massachusetts Department of Education

and JOHN F. WOSTREL

Instructor in Electrical Engineering, and Supervisor in Charge of Industrial Subjects,

Division of University Extension, Massachusetts Department of Education

469 pages, 5½ x 8, 281 illustrations and diagrams—Price \$2.75 postpaid

### A complete manual of electricity and standard methods of industrial wiring

#### Some of the many topics covered

In the first and second chapters you will find a study of effects produced by electric currents, units of measurement, and practical applications. Following this, the book gives you detailed instructions on wiring conduits and moldings; wiring old buildings; wiring for industrial and household appliances; wiring generators, motors and transformers. Then you are given details on industrial and residential lighting, theater services, out-of-door uses, distribution systems, circuit control apparatus and many other applications.

#### 281 charts, diagrams and drawings

Everything is clearly illustrated by diagrams, charts and tables. The practice described throughout the book is based on the 1929 National Electrical Code. In the chapters devoted to practical applications of wiring for electric light and power, material on the planning of circuits and estimating costs is included. A glance over the chapter summary will give you some idea of the wide compass of this work—but you should see this book to really grasp its scope. Take advantage of this free examination offer! Send for it to-day!

#### Chapter Summary

1. Fundamental Theory and Units
  2. Splicing and Soldering Wires
  3. Calculation of Wiring Systems
  4. Wiring Methods and Types
  5. Details of Wiring in Conduits and Moldings
  6. Wiring Old Buildings and Unit Costs
  7. Industrial and House Appliances
  8. Electrical Generators and Generator Wiring
  9. Industrial Electric Motors and Motor Wiring
  10. Transformers and Connections
  11. Industrial Wiring
  12. Wiring for Theater Services
  13. Residential Lighting Equipment
  14. Estimating Industrial and House Wiring
  15. Out-door Wiring
  16. Distribution System
  17. Circuit Control Apparatus
  18. Grounding of Systems and Equipment
  19. Wiring for Miscellaneous Services
- Appendix—Index—Reference to National Electrical Code.

This is a comprehensive exposition of the entire field of practical electrical wiring. It covers everything from fundamentals of electrical theory right down to the most effective methods for handling the newest electrical equipment.

The treatment is simple, progressive and thorough—aimed so that the electrician can acquire the most helpful combination of the fundamentals underlying his problems and an ability to work most economically and efficiently through a knowledge of standard procedure.

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At your request we will send you this book for 10 days' free examination. You owe it to yourself to see this book—if it can solve just one problem facing you it will amply repay you for any trouble you might experience in sending for it. See this book—use it for 10 days and then decide if this isn't a book you will want to have handy always.

#### Fill in and mail this coupon—NOW!

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You may send me on 10 days' approval Moyer and Wostrel's INDUSTRIAL ELECTRICITY AND WIRING. Price \$2.75 postpaid. I agree to remit for the book or return it postpaid within ten days of receipt.

Signed ..... (Please Print)

Address .....

City and State.....

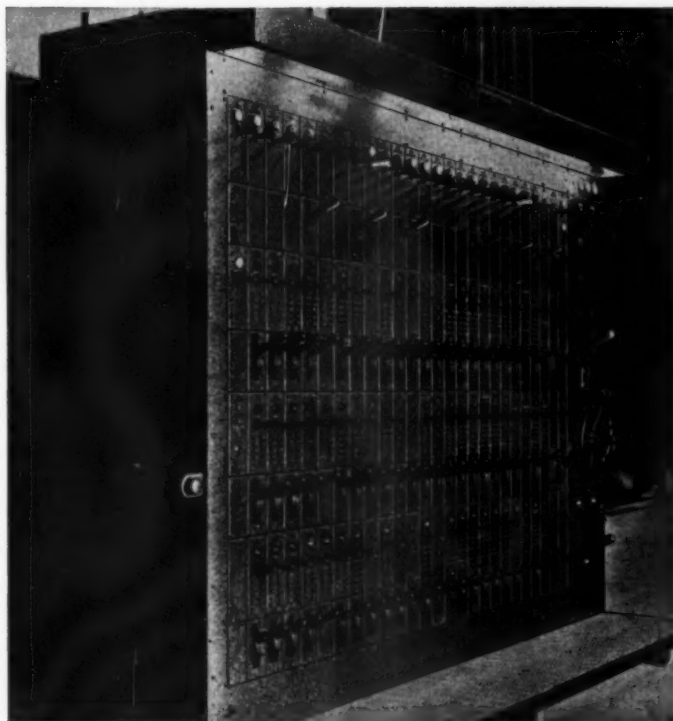
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Built by

# WURDACK

for the New Orleans Auditorium

The switchboard installation in the magnificent New Orleans Auditorium represents an outstanding example of Wurdack engineering and craftsmanship. The huge portable stage switchboard shown above brings to its disappearing stage a flexibility of lighting control and a command of effects second to none in the country. It is equipped with 80 control units and 100 dimmers, and has a current handling capacity of 700 kilowatts. Twenty flexible rubber covered cables, containing a total of 300 wires, connect it to the terminal cabinet. Despite its weight of over three tons, it can be readily moved to any position on the stage. May we send you our folder which fully describes this Wurdack installation?

**WM WURDACK**  
ELECTRIC MFG. CO.

4444 CLAYTON AVE., ST. LOUIS, MO.

See Sweet's catalogue for nearest branch office.



**WIRES CIVIC BUILDINGS:**—The new court house and city hall buildings in Racine, Wis., are being wired by C. H. Jones, an electrical contractor in Racine. This is one of Mr. Jones' largest installations.

agreements and regulations among members of an industry to establish fixed prices for their commodities or stifle competition in bidding or to force others into joining an association of such members.

"The public has the right to choose with whom it will contract without coercive interference on the part of any association of capital or labor, or both."

This case did not involve a quarrel between capital and labor, the gist of the complaint being that their friendly relationship has exceeded reasonable limitation.

The court viewed that the principal difficulty which resulted in the bringing of this action came from the fact that a number of men after serving a certain period as apprentices and journeymen, conceived the idea that they were fitted to become business men and graduate from the ranks of employees to those of employers, when as a matter of fact, they were unfitted by lack of education and business training to be successful contractors in a competitive field.

It was stated that an unscrupulous contractor who has engaged in "cut-throat" competition in order to procure a contract and desires to save his profit by inferior work and the use of inferior material may deceive an unsuspecting owner if the work technically complies with the building code or is not approved by city inspection, unless a scrupulous electrician, taking pride in his work, exercises his right to complain and to report the matter. The evidence showed instances of this sort.

## B E H I N D T H E S C E N E S



The Plaza Theatre, El Paso, Texas, where Youngstown Buckeye Conduit and Youngstown steel pipe assure permanence of electrical wiring and plumbing.

Architects—SCOTT & DUNN  
Dallas, Texas  
General Contractor—H. PONSFORD  
& SONS—El Paso, Texas  
Electrical Contractor—REYNOLD'S  
ELECTRIC CO.—El Paso, Texas  
Plumbing Contractor—A. CARPENTER  
PLUMBING CO.—El Paso, Texas  
Heating Contractor—DIXIE VENTI-  
LATING and ENGINEERING CO.  
Houston, Texas



Wiring

## P E R M A N E N C E

THE casual observer is quick to see and appreciate the beauty of lighting detail in front of the footlights . . . but the architect, the electrical engineer and the electrician see behind the scenes. They know and appreciate the intricate details of the vast wiring system that gives permanence, utility and safety to this beauty . . . the lifetime protection afforded by Youngstown Buckeye Conduit. + That is why the electrical wiring of thousands of buildings is protected with Youngstown Buckeye Conduit.

**YOUNGSTOWN**

THE YOUNGSTOWN SHEET AND TUBE COMPANY

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

General Offices—YOUNGSTOWN, OHIO

## DISTRICT SALES OFFICES:

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BOSTON . . . Chamber of  
Commerce Building  
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CLEVELAND . . . Term'l Tower Bldg.  
DALLAS . . . Magnolia Building

DENVER . . . Continental Oil Bldg.  
DETROIT . . . Fisher Building  
KANSAS CITY, MO. . . Commerce  
Building  
LOS ANGELES . . . 3000 Santa Fe Ave.  
MEMPHIS . . . 42 Keel Avenue  
MINNEAPOLIS . . . Andrus Bldg.  
NEW ORLEANS . . . Hibernia Bldg.

NEW YORK . . . 30 Church Street  
Hudson Terminal Building  
PHILADELPHIA . . . Franklin Trust  
Building  
PITTSBURGH . . . Oliver Building  
SAN FRANCISCO . . . 55 New  
Montgomery Street  
SEATTLE . . . Central Building

ST. LOUIS . . . Louderman Bldg.  
YOUNGSTOWN . . . Stambaugh  
Building  
LONDON REPRESENTATIVE  
The Youngstown Steel Products  
Company, Dashwood House, Old  
Broad Street, London, E. C. Eng.

GALVANIZED SHEETS PROTECT • SAVE WITH STEEL

## FRINK ILLUMINATION of objects of art



The illumination of side wall cases in the jewelry shop of Edw. H. Tompkins, Inc., N.Y.C.

Here are two more examples of how Frink Reflectors and Frink Service can help you make profits in small though difficult illuminating problems. There are literally dozens of such jobs that can be developed in every city, and we will gladly put our 70 years' experience at your disposal to help in their development. Either by mail or in person we will show you how our cooperation can assist you.



*The*  
**FRINK**

CORPORATION  
23-10 Bridge Plaza South  
Long Island City, New York

Marie Harriman Gallery in East 57th St., N. Y. City, showing the successful solution of the difficult problem of illuminating a gallery in a low ceilinged office building through a combination of natural and artificial light.

C. D. Persina, Arch.

As the Court pointed out in the memoranda of opinion:

"There is nothing illegal about the establishment of standard prices for standard commodities, provided such prices are reasonable from the standpoint of the public, but there are too many uncertainties with reference to cost to permit the work of installation and construction involved in the specifications bid upon to become the subject of fixed prices, except to the extent that such a schedule is used for educational purposes and as a guide, and is not binding upon the members. Furthermore, the agreement to allot contracts and establish quotas, was in direct violation of law, and was intended to destroy competition among the group. That this scheme was carried into execution to a limited extent at least is manifest from the evidence, but it never became generally effective.

"The contract between the Union and the E. B. A. defined the rights and obligations of the parties. The same form of contract was used for furnishing men for other employers. The provisions of this contract were declared reasonable and the Court stated when business men voluntarily enter into such a contract they should live up to it. While it would seem that in one or two instances, the business agents were unduly active in 'pulling' men, however, in most instances, the evidence showed that the contract was violated by the employer by a secret partnership with a journeyman. In the case of one complaining witness, the evidence showed that he received his apprenticeship and journeyman training as a union member, left the union to take up other employment, and then later engaged in the work of installing fixtures, posing as a union member when in fact he was not. The evidence also showed that his credit was bad, which probably accounts for his difficulty in buying material, except for cash. The evidence also showed this credit condition to exist with reference to other contractors who complained about inability to purchase material, two of whom, at least, went through bankruptcy and still owe the material concerned."

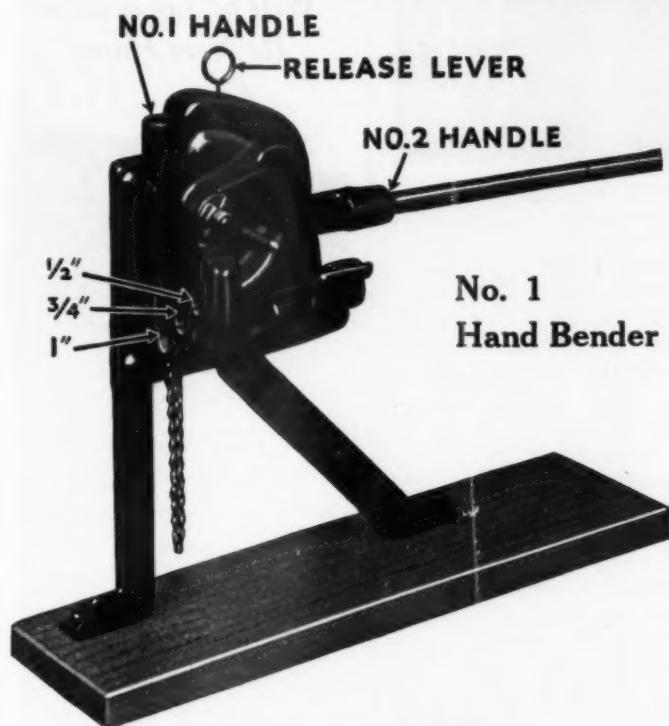


### MOVED TO NEW LOCATION:-

The Robinson Electric Co. is now located at 225 N. 10th Street, Philadelphia. The photo shows Jean Van Trieste all ready for the camera man. Miss Hilda V. Shore in the center and L. A. Robinson (the boss) is seen at the right.



# You Will Increase Your Profits With Modern Equipment



*This New Hand  
Bender will  
Save Time and  
Make Perfect  
Bends*

The No. 1 Hand Bender is the best and only Bender to handle three sizes of pipe or conduit. Will bend  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", and 1" pipe or conduit without any kinks in less time and will make all regular bends, elbows, etc., perfectly.

The No. 4 new improved Thirty Ton Hydraulic Bender will bend eight sizes pipe or conduit, cold,  $1\frac{1}{4}$ " to  $4\frac{1}{2}$ " inclusive, without changing rollers, and will make all necessary bends required with ease and safety.

*Write us for full particulars and give us the name of your jobber who will order a Bender for you on ten days trial.*

Price for the No. 1 Hand Bender with stand—\$49.50; for the No. 4 Thirty Ton Hydraulic Bender with one shoe—\$292.00; f.o.b. Chicago.

*Manufactured by*

**GUSTAVE LIDSEEN, Inc.**

832-840 So. Central Avenue  
Chicago, Ill.



..... use .....  
 ..... the original  
**E-Z CONNECTORS**  
 (PORCELAIN)  
 for Quick-Strong-Safe  
 Wire Connections



TRADE MARK  
 REG.

JOBBER AND DISTRIBUTORS  
 PRICES ON APPLICATION

**WHERE TO BUY  
 "E-Z" Connectors**

Pacific Coast & Mountain States Distributors

**J. M. FELDMAN CO., Inc.**  
 Los Angeles, Calif.

FLORIDA  
 Lighting Fix. Co. (Tampa)

LOUISIANA  
 Lighting Fix. Co. (New Orleans)

MISSOURI  
 Gross Chandler Co. (St. Louis)

NEW YORK  
 L. A. Woolley, Inc. (Buffalo)

City Electric Co. (Brynauwe)

PENNSYLVANIA  
 W. Phila. Elec. Sup. Co. (Phila.)

Star Electrical Co. (Erie)

TEXAS  
 Beckett Elec. Co. (Dallas)  
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PATENTED OCTOBER 21, 1930  
 (Other Patents Pending)

APPROVED BY UNDERWRITERS'  
 LABORATORIES: HYDRO-ELECTRO  
 POWER COMMISSION OF ON-  
 TARIO, CANADA; AND RECOM-  
 MENDED BY NATIONAL ELEC-  
 TRIC CODE AND CITY INSPEC-  
 TION DEPARTMENTS.

**FREE SAMPLE—SEND COUPON**

SIERRA PORCELAIN MFG. CO.  
 311 TERMINAL SALES BLDG.  
 747 WAREHOUSE ST.  
 LOS ANGELES, CALIFORNIA

Please send me a sample of your "E-Z"  
 Connector without obligating me in any way.

Name .....

Street & No. ....

City .....

APR. E.C.

Approved by Under-  
 writers' Laboratories  
 as follows: "E-Z"  
 Solderless splicing  
 device consisting of a  
 glazed, corrugated,  
 porcelain cap with a  
 tapering female  
 thread. For use only  
 in connecting two  
 No. 14 B&S gauge  
 solid conductor  
 wires; also two No.  
 14 solid wires with  
 one or two No. 18  
 B&S gauge, solid  
 or/and stranded con-  
 ductors; also one No.  
 14 and one No. 18  
 solid or stranded  
 wires; also two No.  
 12 and two No. 18  
 B&S gauge solid  
 or/and stranded  
 wires, where such  
 joints are accessible  
 for inspection at all  
 times."

PRICES	
100 .....	\$ 1.50
500 .....	6.25
1,000 .....	10.75
5,000 .....	\$9.50 per M
10,000 .....	9.00 per M



**SUCCESSFUL IN WINDOW WIR-  
 ING:**—By convincing his customers of  
 the need of better lighting, E. I. Des-  
 sent of Dessent Electric Co., Chicago,  
 has successfully wired several stores  
 and windows for illumination purposes.

**Toledo Drafts Selling Code**

A selling code for 1931 has been  
 drafted and submitted by the Toledo  
 Electrical Contractors' Association  
 for their adoption as follows: (1)  
 Replace volume sales with honest,  
 intelligent, and aggressive selling at a  
 profit; (2) one price to all without  
 any concessions or discrimination;  
 (3) abandon all misrepresentation;  
 (4) abolish all secret rebates; (5)  
 no sales at cost or below cost; (6)  
 eliminate all commercial bribery; (7)  
 maintain standards as established by  
 the industry, avoid any substitution  
 or impairment of quality or work-  
 manship; (8) maintain a co-operative  
 attitude toward competitors; (9)  
 adopt a sales policy that is fair to  
 all, then vigorously carry it out; (10)  
 refuse to indulge in price-cutting be-  
 cause of some rumor that a com-  
 petitor has submitted a lower price;  
 (11) insist that every order include  
 a reasonable profit. and (12) support  
 your trade organization to the limit  
 of your ability. The adoption of this  
 selling code will be further discussed  
 at a future meeting.

At a recent meeting of the newly  
 elected board of trustees of the asso-  
 ciation, A. E. DeFrance was elected  
 president; Walter McKie, vice-presi-  
 dent; George Saunders, secretary  
 and Edward DeLisle, treasurer.

Mr. DeFrance appointed the fol-  
 lowing committees and represent-  
 atives: Finance committee, Max Ro-  
 manoff, chairman; code committee;  
 C. H. Rady, chairman; recreation  
 committee, Walter McKie, chairman;

On and After May 1st

**Sterling**

Will be Located in  
 Its New Home



1431-1435 West Austin Ave.  
 Chicago, U. S. A.

NEW enlarged quarters which  
 greatly increases our manufac-  
 turing and shipping facilities  
 and enables us to take care of  
 the growing, popular demand  
 for **Sterling** Reflectors and  
 Flood Lighting Equipment bet-  
 ter than ever before.



**Efficient  
 Lighting  
 Equipment**

ONLY the finest materials and  
 workmanship are used in **Ster-  
 ling** Reflectors. That's why  
 we can guarantee them for  
 "A Lifetime of  
 Service."



**Sterling Reflector No. 251**

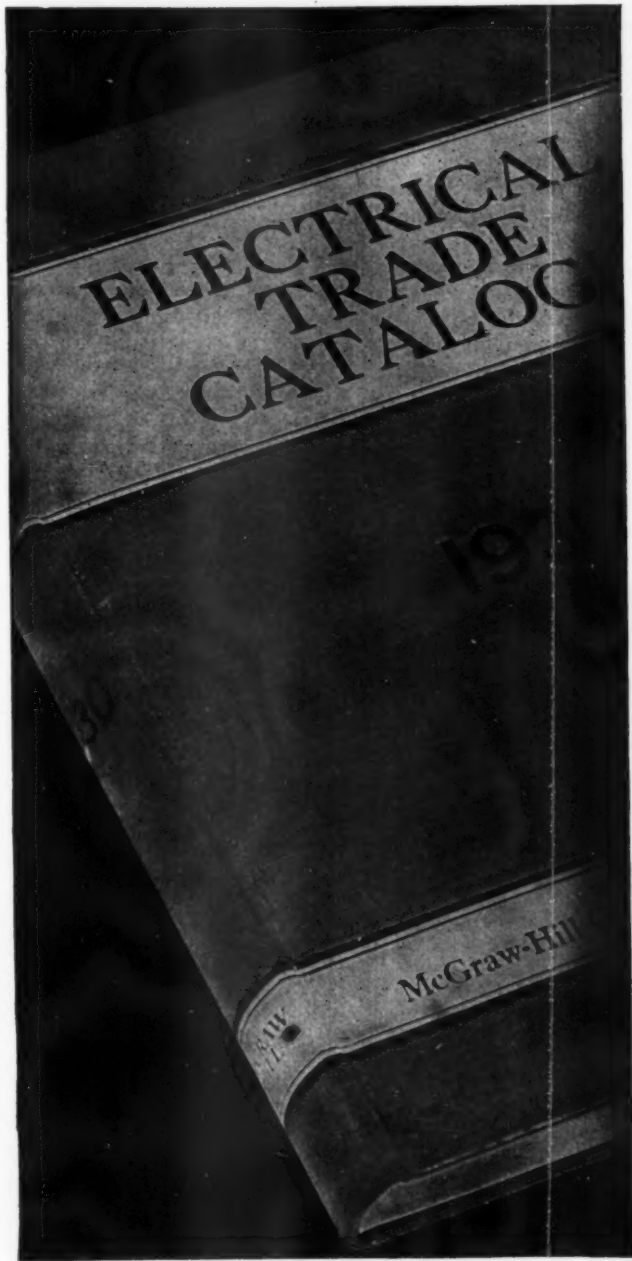
**Reflector & Illuminating Co.**

Manufacturers and Engineers

1415 Jackson Blvd., Chicago, U. S. A.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

# USE THIS *"Catalog-file"* TO FIND THE INFORMATION YOU WANT!



Use ELECTRICAL TRADE CATALOGS whenever you want information on electrical supplies and equipment.

Use it to help you get orders and place orders.

Use it to carry out architects' plans and specifications.

Use ELECTRICAL TRADE CATALOGS to help you locate the source of supply of products you are interested in.

Use this collection of catalogs to answer the hundred-and-one questions that come up in the days' work.

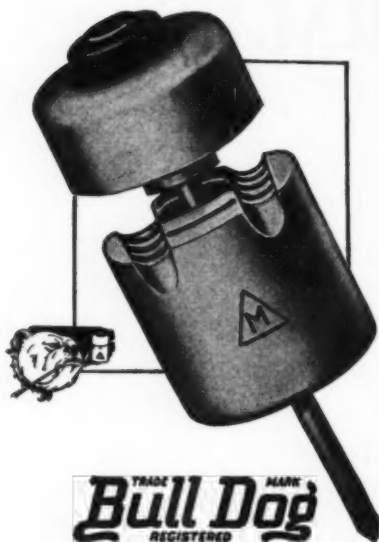
ELECTRICAL TRADE CATALOGS will take the place of many miscellaneous catalogs, bulletins, and price lists which constantly become lost, misfiled, or mislaid. ELECTRICAL TRADE CATALOGS is *your* "catalog-file"—built the way you want it—packed full of details that will help you in your daily work, and all arranged so that you can instantly find the catalog of the company you are looking for.

*"Look it up first"* in ELECTRICAL TRADE CATALOGS—the "catalog-file" with the Orange Bands.

**McGraw-Hill**  
**CATALOG AND DIRECTORY**  
**COMPANY, INC.**  
**NEW YORK, N. Y.**



"It has a grip like its namesake"



## Split Knobs

THESE are the safe, approved knobs for all types of residence wiring. They mean better jobs at no added cost. Bull Dog Split Knobs, together with Illinois Porcelain Tubes, Cleats and Solid Knobs form a complete line of standard porcelain.



Sold Through Wholesalers

Illinois Electric Porcelain Co.  
Macomb, Illinois

membership committee, Edward DeLisle, chairman; grievance committee, George L. Saunders, chairman; merchandise committee, W. M. Eggleston, chairman; safety council, C. F. Hammer and Ohio Electrical Contractors Association, C. F. Hammer and Edward DeLisle.

### Southern California Chapter Limits Membership

After a survey of the contractor-dealer field in southern California, the executive committee of the California Electragists, Southern Chapter, set a limit of 150 for its total membership and determined that during 1931 it would seek no more than this number. This move was determined upon early in the year, submitted to members for approval and unanimously endorsed.

The budget for the year was set at \$12,000, immediately subscribed and pledges signed by the entire membership guaranteeing the budget for the balance of the year.

Plans are now being made for the establishment of a credit bureau by the Los Angeles Credit Association through which all sources of material supply are to be urged to work; the improvement of central station-dealer relations and merchandising practices; the support of technical and licensing ordinances which are known



**LIGHT MANY MINIATURE GOLF COURSES:**—The Premier Electrical Construction Co., Chicago, Ill., does mostly large work, maintenance, etc., but did a number of fine lighting jobs on putting courses. Although not maintaining a large store, the company has a large merchandise volume from commercial sources. In this picture H. L. Ackerman, one of the partners, is shown using ELECTRICAL CONTRACTING's Resale Price Schedule.

## Always Look Before You Light

That sounds like good advice to a parachute jumper, but it's even better advice to electrical contractors.

The lighting of modern buildings has become an exact science as well as a fine art.

In order that the finest possible lighting effects may be secured for any building, we maintain a completely equipped lighting demonstration studio at our factory.

Here—with the hearty cooperation of our corps of experienced lighting engineers—a complete program of lighting effects can be worked out, and Hub equipment specially designed to produce every desired lighting effect.

You are cordially invited to make free use of all of our facilities as it fits your convenience. The complete facilities of our capable organization are yours to command.

Write for your free copy of comprehensive Lighting Handbook just published. We will be glad to send it to you.

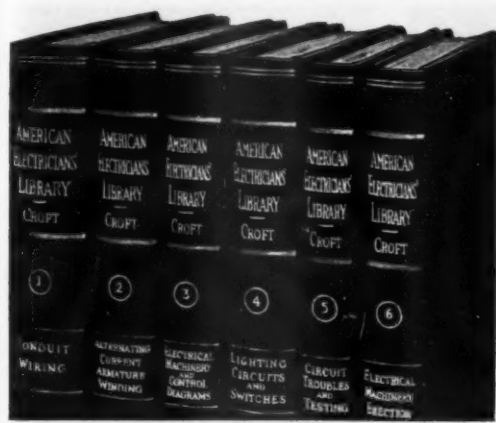
## HUB ELECTRIC COMPANY

Complete Electric Lighting  
Equipment

Factory and General Offices  
2219-2225 West Grand Avenue  
Chicago

Telephone Seeley 6440-1-2-3

Branch Offices  
New York Toledo Milwaukee Minneapolis



Terrell Croft's

## American Electricians' Library

### What the six big volumes of this Library offer you!

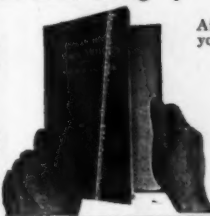
Terrell Croft prepared this subscription library for practical electricians. The six volumes bring to you exact step-by-step directions for the installation of every type of conduit wiring job—they tell you how to handle every kind of lighting circuit and switch problem—they give you short cuts to saving time on maintenance routine—they give you useful tips on electrical machinery erection—they offer you practical, clear explanations of all kinds of A.C. armature winding jobs—they bring you a thousand armature winding, electrical machinery, and control diagrams—they show you the surest, quickest methods of locating and remedying circuit troubles. They cover the countless problems you are confronted with daily.

### More than 1,000 wiring diagrams---

The thousand wiring diagrams in these six books are alone worth the price of the entire library to any practical electrician. Many of these diagrams are unobtainable elsewhere; many more are very hard to get from any other source; all of them are much clearer and more helpful than most wiring plans available. They include:

- 300 lighting circuit diagrams, and a number of other practical working drawings
- 300 conduit-wiring diagrams
- 9 single-phase armature winding diagrams
- 52 two-phase armature winding diagrams
- 100 three-phase armature winding diagrams
- 570 electrical machinery and control wiring diagrams

This Library contains all the useful hows and whys and wherefores for wiremen, trouble shooters, armature winders, electrical maintenance men, and electrical contractors.



**FREE!**  
if you act now

Braymer and Roe's **REWINDING SMALL MOTORS** comes to you absolutely free if you act now in getting your **AMERICAN ELECTRICIANS' LIBRARY**. This book will give you much practical information about rewinding all types and designs of fractional-horse-power motors.

## To electrical workers who want to succeed

**T**HOUSANDS of men in every part of the country have used the six big books of the American Electricians' Library to make their work easier and to push themselves ahead. If you, too, are determined to go further in electrical work, no matter what your position is now, you are invited to examine the American Electricians' Library for 10 days without any obligation to purchase it. Furthermore, if after you have examined these books you decide that they can help you as they have helped countless others, you can have Braymer and Roe's *Rewinding Small Motors* absolutely free.

6 Volumes—over 2,000 pages—fully illustrated

\$1.50 in ten days and \$2.00 monthly for 8 months.

Send no money—see these books for 10 days

Let us send you these fact-packed books for ten days' free examination. There is no charge for the examination—no obligation to buy the books unless you want them. These books have helped, and are helping, so many men that it is no longer a question of "Will they help you?"—the question is "Will you let them help you?"

Terrell Croft's books on practical electricity are known and respected by experienced electricians throughout the world. This latest Croft library is packed full of practical data, diagrams, links, short cuts, helps—to supplement his previous books. These six books are written especially to help wiremen, trouble shooters, maintenance men, armature winders and electrical contractors.

The six books cover the whole wiring field. They give you concrete usable details about new and better ways of armature winding, conduit wiring, circuit testing, etc., telling you what experience has proved to be best, showing you what to look out for, what to avoid—outlining for you, step by step, the surest, quickest way of locating troubles and of remedying them.

We could fill several pages with arguments telling how so many thousands of men have profited by the American Electricians' Library. But we'd like to leave it to the books—and we'll stand or fall on the outcome of your examination. You will agree that this is a liberal offer; and, frankly, we couldn't afford it if this examination offer didn't usually convince. We know how good these books are—we want you to see them for yourself.

### A Valuable Book Absolutely FREE

After you have seen these books at your leisure—after you have used them in your work—decide whether or not they are going to help you. Then, return the books or remit only \$1.50 and then \$2.00 a month until \$17.50 has been paid. On receipt of your first payment Braymer and Roe's *Rewinding Small Motors* will be sent you absolutely free.

Fill in and mail this coupon now!

### McGraw-Hill FREE EXAMINATION COUPON

McGraw-Hill Book Co., Inc., 370 Seventh Ave., New York.

Gentlemen: Send me for 10 days' free examination, all charges prepaid, the **AMERICAN ELECTRICIANS' LIBRARY**, 6 volumes. If I find the books satisfactory, I will send you \$1.50 in ten days, and \$2.00 a month until the Special Price of \$17.50 has been paid. If they are not what I want I will return them. Upon receipt of my first payment you agree to send me free a copy of *Braymer & Roe's Rewinding Small Motors*.

Signature .....

Residence Address .....

City and State .....

Firm or Employer .....

Occupation ..... E.C. 4-31

Mail this coupon! ➔

## See Our New Catalog!



Q-D Rectangular Angle Reflector and Fittings. Porcelain enameled green outside, white inside. Lamp size 50 to 500 Watts.

There are many new and interesting items and helpful ideas in our Catalog No. 4. Turn to page 23 and note the variety of ways you can use Q-D Rectangular Angle Reflectors. Three types interchangeable fittings: horizontal, vertical and outlet box. All are obtainable with pull or keyless medium sockets. Mogul sockets in horizontal and vertical type for lamps 300 to 500 Watts.

The interchangeable features, flexibility and new ideas embodied in the Quad line evidence the alertness of our designers and engineers in meeting modern needs.

### QUADRANGLE MANUFACTURING CO.

30 S. Peoria Street

Chicago, Illinois



**FURNISH WIRING AND FIXTURES FOR 12 STORY BUILDING:**—The Nystrom Electric Co., Sioux City, Iowa, is proud of the Badgerow Building job, one of many large ones completed this year. This company also has the job of lighting up the city with colored festoons for Christmas every year. Left to right: E. M. Nystrom; Florence Garritt; Charles Floyd; Keith Lewis, and Dwight Nystrom.

to be sound and fair; the promotion of adequacy in wiring and the building of business for electrical contractors.

### Joseph Buehler

Joseph Buehler, a retired electrical contractor, died on February 7 at Santiago, Calif., at the age of 73.

Mr. Buehler founded Buehler & Bateman, one of the early electrical contracting firms in New York,



John Buehler

which later became Hatzel & Buehler, now in the Graybar Building. This firm did the electric installation in the new Chrysler Building.

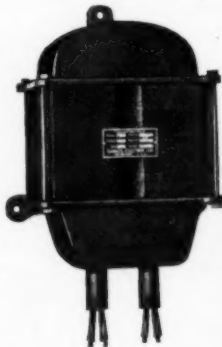
Mr. Buehler, who had been ac-

## No Fire-Proof Vaults

No Enclosures. No Oil. No Upkeep.

**Because,** being *air-cooled*, SORGEI self-contained Transformers can be installed easily and economically in any convenient place *inside of buildings*.

Keep busy installing them by showing industrialists how they can save money by supplying 110 volts for *lighting, portable tools, apparatus*, from 220, 440 or 550 volt A. C. Power circuits.



Stock Sizes  $\frac{1}{4}$  to 50 KVA. Single Phase  
Other sizes built to order 2-Phase  
3-Phase

SORGEI ELECTRIC CO., Clybourn & N. Plankinton, Milwaukee, Wis

**SORGEI**  
**AIR-COOLED**  
**TRANSFORMERS**

Approved by  
Underwriters

With  
Conduit  
Connections





# THIS FAILURE BUSINESS!

## EXPERIENCE GIVES WARNING

Successful Contractors who have come safely through the years have learned to go after jobs rich in profits and waste little or no effort on jobs which are too lean.

## SUCCESS OR FAILURE

The growing use of the NATIONAL ELECTRICAL RESALE PRICE SERVICE by alert and profit-minded contractors in every community offers convincing proof that there is an increasing interest in more profitable business rather than just more business.

## PAYS PROFITS

If you have been dissatisfied with your profits, here is something that will make money for you every day in the year. We have issued a little booklet which describes this unusual Service. Would you like to read it? It's yours for the asking; simply attach your letterhead to the coupon below.

HENDERSON-HAZEL CORPORATION, 5005 Euclid Ave., Cleveland, Ohio.

Gentlemen:

Without obligation please send us your booklet describing the NATIONAL ELECTRICAL RESALE PRICE SERVICE.

Name.....

Address.....

City or Town.....

State.....

EC-4-31.

*Here's a  
Profitable  
Field for  
YOU*



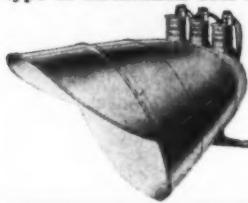
## GIANT FLOODLIGHT PROJECTORS

Every type of business or outdoor activity is a prospect for a night floodlighting job—baseball parks, athletic fields, tennis courts, filling stations, swimming pools, loading docks, construction jobs and scores of others.

We co-operate 100% with the Electrical Contractor and will help you develop business in your community. Giant engineers will recommend the type of installation best suited to the

particular job and assist you with plans and selling.

GIANT Floodlights have proven their superiority for all athletic, recreational and industrial lighting purposes—they produce an even, glare-free light that very nearly approaches daylight efficiency. Write us for full information about Night Lighting and the special co-operation we offer electrical contractors.



### Giant Mfg. Co.

Dept. E.C.

Council Bluffs, Iowa

Trenton, N. J.    Oakland, Calif.



tively engaged in electrical contracting up until 1915, when he retired, was also interested in association work, having been one of the charter members of the National Electrical Contractors' Association.

### To Convene in May

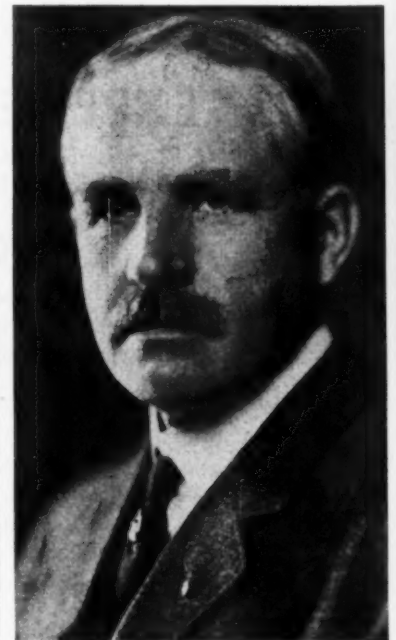
May 25 and 26 are the dates set by the Iowa Association of Electrical Contractor-Dealers for its spring convention to be held at the Hotel Burlington, Burlington, Iowa.

An invitation has been extended to all members of the Illinois Chapter of Electragists to attend this convention in addition to the Iowa Chapter members.

### W. I. Gray

W. I. Gray, one of the pioneers in association work in the electrical contracting industry, died at his home in Minneapolis on February 6 at the age of 66.

For years Mr. Gray was the active head of the largest electrical contracting business in the Twin Cities.



W. I. Gray

At one time he operated with J. H. Schumacher, now an Electragist executive committeeman from Winnipeg, an electrical contracting business under the name of Schumacher, Gray & Co.

## RUGGED RALCO RECEPTACLES

Type AN

Type PRGN Plug

Type DN

The watertight Circuit Breaking Receptacles and Plugs illustrated, have self-aligning floating contacts, arc resisting insulators, and separate terminals for protective ground.

Very easy to wire, made in 2, 3 and 4-Pole, 30 and 60 Ampere. Approved for use on both 250-Volt D.C. and 600-Volt A.C. Circuits.

Ask for Bulletin 102

### Ralco Manufacturing Company

Designers & Manufacturers  
125 No. Albany Ave., : Chicago, Ill.

Type BN

Type HN

Type CN

Type HF

Mr. Gray was first president of the Minnesota State Board of Electricity which was formed in 1898 and was the second man to hold a vice-presidency in the National Association of Electrical Contractors, forerunner of the present Association of Electragists. In 1917 he was president of the Minneapolis Builders Exchange. A number of years ago he retired from the contracting business to become a manufacturers' agent. He was secretary of the Minneapolis Electrical Contractors' Association up to the time of his death.

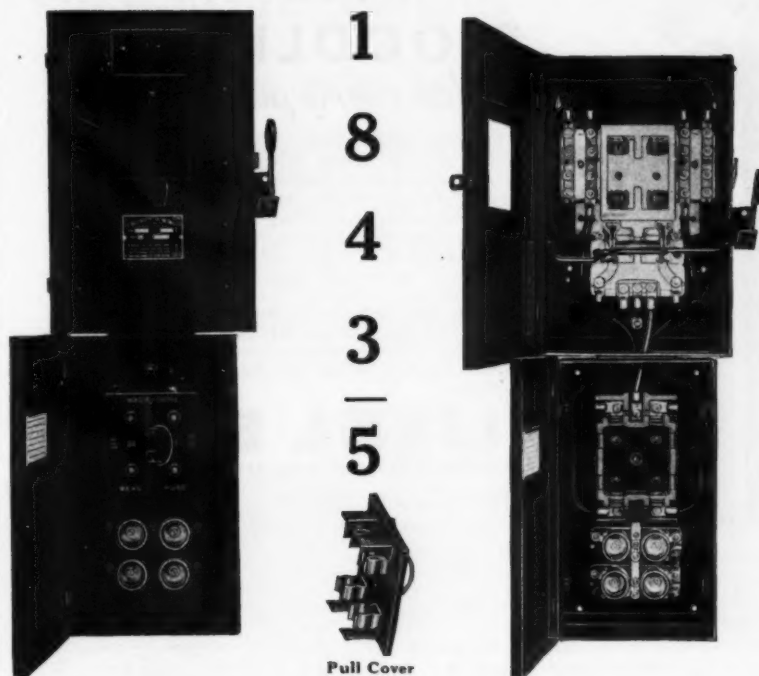
#### Matt Webb

Matt Webb, for many years a prominent electrical contractor in New York City, died on February 22 at the age of 60. Mr. Webb, who had a controlling interest in the James F. Hughes Co. was a member of the Electrical Contractors' Association of New York. He retired from active business four years ago due to ill health. Members of the Executive Committee of the A. E. I. will particularly remember Mr. Webb as a host for many years at the time of the spring meetings.



**ELECTRICAL INSPECTOR HEADS INDIANAPOLIS LEAGUE:**—Ford H. Moore, electrical inspector, was elected president of the Electric League of Indianapolis, Ind., recently. Other officers elected are William C. Griffith, vice-president; Roy L. Brown, treasurer, and Ted C. Brown, re-elected secretary.

# WADSWORTH



If you Buy on the  
"Basis"

of Quality, Service and Satisfaction

This Wadsworth Accessible Fuse Meter Service Switch with Range and Lighting Circuits is the switch to use.

It will meet your installation requirements and provide a

"SAFE"

"ADEQUATE WIRING"  
RANGE INSTALLATION

for your customers.

Write for Bulletin No. 23 for complete information.

**The WADSWORTH ELECTRIC MFG. CO. INC.**  
Covington, Kentucky.





## Outdoor FLOODLIGHTS

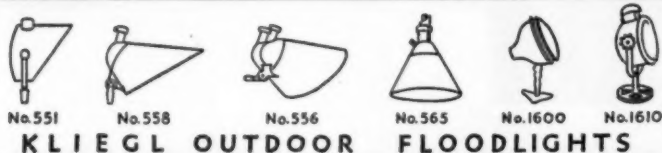
*for every purpose*

REQUIREMENTS vary — so Kliegl floodlights are made in several different types permitting the selection of units best suited to your needs—giving the maximum light, at a minimum cost, with the utmost satisfaction. They are made for close-range or long-range lighting, with a concentrated or wide-spread light beam, and every unit is guaranteed to be well made, highly efficient, and economical in use.

Advise us about your conditions — what you want to light, and the problems that confront you. We will gladly offer recommendations, and send descriptive literature of our complete line of outdoor floodlights.

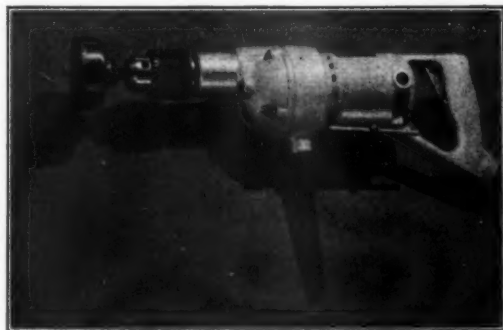
## K LIEGL BROS

UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.  
321 WEST 50th STREET NEW YORK, N.Y.



## Have You Tried

### the WAPPAT RED STREAK Slow Speed Drill on installation jobs



Designed and built for jobs you are doing every day. A powerful slow-speed drill, 200 r.p.m., that cannot be stalled by hand drilling.

Particularly well adapted for hole saws up to 3" diameter, 1" wood bits, and for drilling unusually hard metal. The WAPPAT  $\frac{1}{4}$ " Slow-Speed Drill embodies the same advanced principles of design and construction as other WAPPAT products, which include a complete line of heavy duty drills and grinders.

#### Use Coupon for Complete Story

**WAPPAT**  
INCORPORATED

47 Braddock Ave.  
Pittsburgh, Pa.

A Division of Simonds Saw & Steel Co.

Name .....

Address .....

City .....



## A ROLL O' TAPE

*Electrical flash-  
es gathered  
among the Big  
Wire-and-Pipe  
Men by*

Coit A. (Duke) Smith  
and Walter Holmes

Field Editors, ELECTRICAL CONTRACTING

"AFTER Opportunity knocks, watch where he goes—he may slip up another good job," says J. E. Pursell, Live Wire Electric Co., Decatur, Ga. In wiring a Colonial tea room out in the country Pursell did a fine job of converting old style kerosene lamps into electrical units, installing about a dozen large table lamps and 20 brackets. On the strength of this job, he got in touch with a couple who were building a log home in the woods. These folks saw the tea room job and were delighted, with the result that Pursell installed for them 15 brackets and eight table lamps, even furnishing some units made from the regulation type of railroad lantern.

A PHILADELPHIA contractor ran an ad "Old Houses Rewired. 10 Months to Pay." He believed that this ad would get plenty of answers. It did. However, he found that, in general, the people who were attracted by this ad were estimate hunters who did not want to pay for quality work.

IT makes me feel good all over these days to see contractors so busy they don't know where to turn next. The Buffalo, N. Y., boys are more than holding their own and Bert Simon, head of the Simon Electric Supply Co., is one of the busiest. He is a commercial lighting specialist and had the honor of lighting the largest miniature golf course in the state. Most of his work is downtown stores and in November he had to put on several men.

CONTRACTORS at Washington, D. C., seem pleased with the cooperative spirit of the electrical workers' union. At union meetings manufacturers' representatives give talks and demonstrations showing the audience the most effective way of using their products.

RUSSELL Goff and Jack O'Brian are two live wires operating the Erie Electric Sales Service, in Erie, Pa. They have succeeded in building up a fine

# GREATER SIMPLICITY...FEWER PARTS...

## Quicker, Easier Renewals are Features of the New

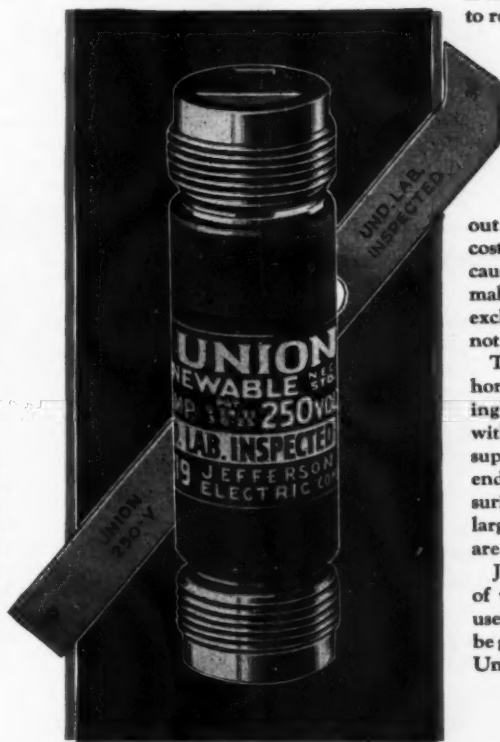


Caps are one piece, insuring positive contact with the clips.



The knife-blade type Union Renewable Fuse also has an exclusive system of venting, few parts, substantial construction—and a link notched at both ends to permit quick, easy renewals. These features and the rugged grey horn fibre casing are a guarantee of longer fuse life—a new fuse for the price of a link.

# JEFFERSON UNION RENEWABLE FUSES



USERS who have seen the new ferrule type Union Renewable Fuse declare it the simplest, most practical, easiest fuse to renew.

Besides the link there are only three parts—two caps and the casing. And the caps have no loose washers to drop or lose. To renew, simply unscrew the caps—pull out the link, insert a new one, screw on the caps—and the fuse is ready for service.

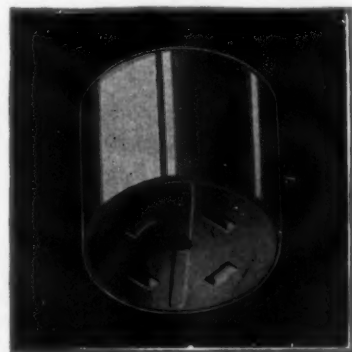
It is designed to withstand blow out after blowout—reducing yearly fuse costs. Venting which relieves the pressure caused by the blowing of the link, and makes long life possible, is secured by an exclusive method—through the end caps, not the threads.

The link is held diagonally in the heavy horn fibre casing—keeping it from touching and charring the fibre, or interfering with the accuracy of the rating. The link is supplied bent at only one end. The straight end is inserted in slots and bent over, insuring correct fit automatically. Slots are large for easy cleaning and inspection and are so shaped that the link can not twist.

Get down a sample order for use on a few of your most troublesome circuits. Actual use will prove these superiorities. We will be glad to tell you which wholesalers handle Union Renewable Fuses in your territory.

# JEFFERSON ELECTRIC COMPANY

1503 West 15th Street, Chicago, Ill.

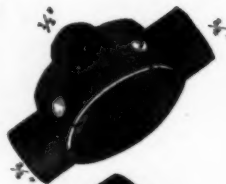


## "ADAPT-i"

**Stands for a Full Line of Conduit Fittings to Give You Full Satisfaction—at Less Stock Cost—with Less Trouble on the Job**



We have Threaded and Threadless ADAPTELETS for your general run of work—Gang Switch Boxes which "gang up" neatly in small space—Service Entrance Ells and Fittings—ADAPTIBOXES, where changes and extensions may be needed later—and so complete a line of bushings, accessories, etc., that you don't need to split your order to get what you want.



Write us for Bulletins

**The ADAPT-i Co.**

2996 East 72nd St., Cleveland, O.

NEW YORK CITY—A. Stone, 112 E. 23rd St.

BOSTON, MASS.—E. R. Bryant, 52 "B" Street

CHICAGO, ILL.—The United Electric Sales Co., 300 W. Adams St.

PHILADELPHIA, PA.—The Craven Electric Sales Co., 30 Bank St.

merchandising volume in connection with construction. This necessitated getting a larger place, and when it came time to move they were not satisfied with just another store and shop. Instead they secured a whole building and, after remodeling, are much better equipped to carry on an increased business.

"I THINK you charge too much," said a foreign born customer to a Philadelphia contractor. "All right," said the obliging contractor, "I'll knock off ten dollars from the bill." And that was the last job this contractor got from his foreign customer. The latter didn't know anything about contracting costs, but he guessed that if the contractor could afford to reduce his price he must have been overcharging. The contractor who is doing this man's work now has only one price. If the price is questioned the contractor explains why the job is worth the sum asked—but he never reduces.

BREHMER Electric Co. of South Bend, Ind., which means the two active Brehmer brothers, believe that red paint is good for more than the painting of barns or danger signals. All their ladders and tools are painted red. I ask you—what truck driver would be color blind enough to run his car over a red painted ladder? And in addition, it proves ownership on the job.

## THE OAMCO FLOODLIGHT



No. 1096

Contractors will find the OAMCO floodlight suitable for lighting gasoline filling stations, parking lots, playgrounds, bathing beaches, tennis courts, golf courses, football fields, storage yards, construction work, etc. Made for 750-1000-1500 watt general service lamp. Reflector is oxidized aluminum inside and outside. Highly efficient and easily cleaned.

Porcelain Mogul socket with service entrance fitting. Bracket can be adjusted to any angle. Can be attached to pole or flat surface. Send for floodlight bulletin No. 79.

**OVERBACH & AYRES MFG. CO.**

413 S. Clinton St.

Chicago, Ill.

A NEW YORK inspector was making reinspection calls in every building of a certain section of the city. As he was leaving one building he passed a man distributing circulars for a contractor. "Lay off," advised the inspector and the man went elsewhere with his circulars. This makes an interesting speculation. Some would say that there was advertising value in getting one's name before a man who has suddenly found himself obligated to have electrical work done. Others would agree with the inspector who declared that people would think the advertising contractor was responsible for having their wiring condemned.

I HAD heard that the city of Mobile, Ala., was noted for patronizing home production, and was glad to learn that this custom holds good in the wiring business. According to several electrical men, both interested and neutral, only three important installations have gone to outside firms in the past five years.

H. F. HARTMAN, Scranton, Pa., says that although there is a great deal of cut price work the average contractor does not want to be a price cutter. Many of them, he declares, do not understand how to figure overhead and profits. Some do not include a salary



for themselves, or if they own their place of business, the rental value of it in overhead. Others figure profit on cost rather than selling price. Special attention should be given this subject by leagues and associations he believes.

THE J. M. Clayton Electric Co., Atlanta, Ga., did a lot of real speed work on the First National Bank job in that city. A large addition to the original building was made and the problem was to bring over the service to the new wing without disturbing the banking activities. The old building was equipped with direct current throughout. The Clayton boys made the change in record time, putting a.c. in both structures without shutting down. The new motors were slipped in between Saturday afternoon and Monday morning.

THE Crown Electric Co., Baltimore, has a customer who is a large builder of homes. The man has been in the business twenty years. For the past five he has seen the advantage of adequate wiring and one of his selling points on a house is the number of receptacles offered in his homes. Contractors everywhere are beginning to show the speculative builder how adequate wiring will speed the sale of houses.

I HAD occasion to see the annual audited statement of a 13 year old electrical contracting firm in Chicago. The whole thing was so simple that I remembered a few items. Capital stock, ten thousand dollars, good-will, one dollar, a good percentage taken off for depreciation of tools and office fixtures, and the big item of thirty-three thousand surplus. Enough in the surplus to make a plumber jealous. If you asked this firm how they do it, they would tell you SPECIALIZE.

THE S. Shelly Co., Philadelphia, never has extras on a job. Shelly goes to a customer and tells him what is needed for a job and the cost when completed. All extras are sold before the contract is signed. The total amount may sometimes stagger the customer, but at least he knows that Shelly's first price is his last. This policy has made satisfied customers.

HERE goes for another epidemic of special lighting jobs which will mean a world of business for electrical contractors over the country. The Modern Electric Co., Buffalo, N. Y., is the first firm I know of to illuminate a public horseshoe pitching course. There are spaces for six sets of players and in this case the lighting consists of 24 open reflector units of 100 watt capacity. The interest is so great that downtown merchants are forming leagues to play games on this course.



## SMOOTH-RUNNING THREADS CLEAN-CUTTING METAL

The quality of raw materials selected, the precision in manufacture and the ease of workability of Fretz-Moon Conduit—much of which may not be apparent at first glance—is demonstrated simply and conclusively in the threads.

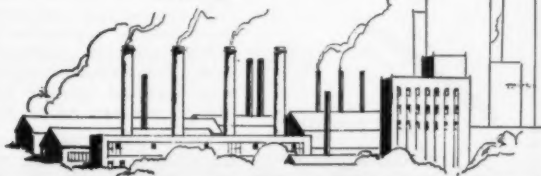
Deep, sharp, clean, accurate — on every piece of Fretz-Moon Conduit you'll find this evidence of quality. Spin on the coupling—it turns free and fast. And the steel is unusually uniform—it cuts and threads clean on the job.

Ease of installation has made Fretz-Moon Conduit popular with everyone who specifies or uses it.

In three brands to meet all conditions—ENAMELITE, black enameled inside and out—GALVITE, enameled inside and electro-galvanized outside—HOT DIPPED GALVITE, galvanized heavily both inside and out with a baked-on coat of enamel over the inside galvanizing.

*Fretz-Moon Conduit saves time, worry and money for everyone concerned.*

Fretz-Moon Tube Co., Inc.  
Butler, Penna.



# FRETZ-MOON RIGID CONDUIT

## It Is FLOODLIGHT TIME!



No.  
22

Porcelain  
Enamelled  
open or  
closed type  
Absolute  
Weather Proof, Rust Proof

**HILLITE**, Hill-Standard's remarkable creation already has an enormous demand! **THE PROFIT PRODUCER** for Electrical Contractors everywhere!

**CONTRACTORS!** A record season for HILLITE is beginning! For Parks, Swimming Pools, Beaches, night outdoor games of every kind, commercial uses. Will you share in this active and increasing business?

**"When You Buy with Confidence You Have Thoughts of HILL-STANDARD"**

Get in touch with us at once! Our competent staff of floodlighting engineers is at your disposal. Let us aid in solving your problems. Address electrical contracting division.

# HILL-STANDARD CO.

ESTABLISHED 1900

## ANDERSON INDIANA, U.S.A.

*Largest Manufacturers of Equipment for Water Sports, Playgrounds and Flood Lighting.*

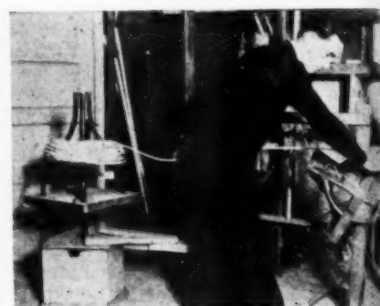
## PRACTICAL

### Universal Coil Reel

The Hurd Electric Co., Minneapolis, Minn., has constructed a reel to use in connection with a wire measuring device which will fit any normal sized coil of wire without adjustment.

A 1 in. piece of conduit is supported in a solid base and on it a square frame is constructed so that it rotates freely.

In the corners of this frame are attached four pieces of ½ in. conduit offset so that they nearly converge as shown in the accompanying

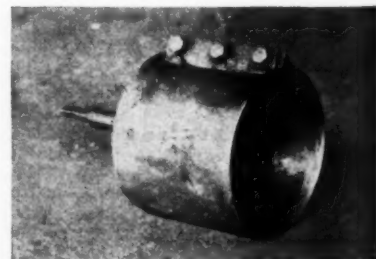


A REEL CONSTRUCTED TO TAKE VARIOUS SIZED COILS.

ing illustration. The resulting shape allows any regular sized coil of wire to be slipped over the top and held in place at approximately a uniform position. The abrupt curves of the offsets prevent coils from becoming wedged in place.

### Fibre Duct Trimmer

This device for trimming fibre duct for coupling is used by W. V. Pangborne & Co., Philadelphia. An



FIBRE DUCT TRIMMER MADE FROM ENGINE PISTON.



## Trester Air Cooled Transformers

For  
LIGHTING  
SYSTEMS and other  
INDUSTRIAL USES

**N**O oil—no special fireproof vaults—no special hangers—no maintenance or replacement charges—economical in operation—easy to install—can be hung on wall or mounted directly over lighting circuit cabinet. All come equipped with standard conduit connection—no extra fittings—conform to all electrical codes.

Single phase, two phase and three phase transformers. 115, 230, 460 and 550 volts.

Transformers designed for special purposes.

Send for our  
Bulletin 630

*Representatives desired in principal cities and Industrial centers.*

## TRESTER SERVICE ELECTRIC CO.

235 E. Odgen Avenue at Market Street, Milwaukee, Wis.

**"Trester Service Since 1908"**

## METHODS

old auto piston forms the cup. This is slit on the side to allow entrance for a blade and space for the shavings much after the manner of the old-time pencil sharpeners. A base for the cutter blade is built up along the slit by welding.

The blade, which is made to project a greater distance into the cup at the closed end than at the open end, is bolted on to allow removal for sharpening. A drill shank is welded on the end of the piston permitting the device to be operated



THE TRIMMER IS OPERATED WITH A HAND DRILL

with a hand drill as shown in the illustration. This trimmer is economical to make, light and easy to use and saves considerable labor.

### Unique Attention Getter

Although the Electric Service Co., New York, has a second floor location, by an ingenious homemade electrical device they are able to attract as much attention to their place of business as stores below that pay much higher rent.

This attention getter was devised with colored lights that revolve in different directions. At the base of the sign is a small motor geared to allow the device to operate at 40 r.p.m. Wire is run inside the pipe stand and current transmitted to the lights by a collector ring on the main hub. Wires pick this up again and

*New*

**24/36 Wavy Set**

**MIL FLEX**

**DUPLEX**

PATENTED U.S.A.

*Electricians Special*

**HACK SAW BLADES**

LARGE TEETH FOR CUTTING A SMALL TEETH FOR STARTING

MIL FLEX  
DUPLEX  
PAT. U.S.A.

ON your first cutting of BX, or wire moulds with the new MIL FLEX DUPLEX Self-Starting Hack Saw Blade, you'll agree that this new blade—designed especially for electricians—is the greatest improvement ever made in blade construction.

The fine tooth section of the DUPLEX, starts the cut on the first stroke, and it cuts in a clean straight line precisely where you want it and at any angle. By using the fine teeth again on the last few strokes, the tearing of material is eliminated—especially important when cutting BX.

It requires but a single trial to convince you that the Electricians Special is the easiest starting, fastest cutting hack saw blade you ever used. Its superiority over the old style blade is immediately apparent.

For metal cutting efficiency—far beyond your expectations—demand the Electricians Special MIL FLEX DUPLEX Blade.

Ask Your Dealer or Jobber

Made in 24/36 pitch wavy set. Also 14/20 and 18/30 pitch straight set. The fine teeth start the cut like the feed screw of an auger bit.

*Demand*

**MIL FLEX**

**DUPLEX**

PATENTED U.S.A.

The HENRY G. THOMPSON & SON CO.

Established 1876

New Haven, Conn., U. S. A.



# FULLMAN MANUFACTURING CO.

LATROBE, PENNSYLVANIA

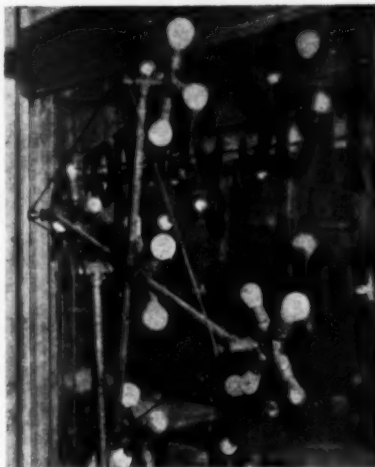
FLOOR BOXES, INSULATOR SUPPORTS, CONDUIT BENDERS, FISH WIRE

WRITE ON YOUR LETTERHEAD FOR COPY

## NEW CATALOG No. 225

carry it to the collector rings at the wheels on the end of the spokes.

The main wheel revolves directly



ATTENTION GETTER IN WINDOW

from the motor. The belt on the smaller wheels rests on a stationary cylinder at the hub. As the belt remains stationary the small wheels

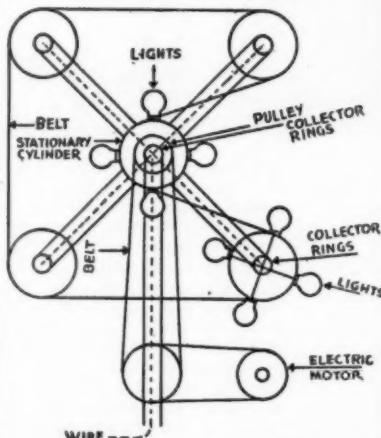


DIAGRAM OF ATTENTION GETTER

are forced to revolve. This gives the impression that the lights are moving in several different directions.

This simple machine made from pipe and fittings has been in operation for five years without a breakdown.

### Centralize Material on Job

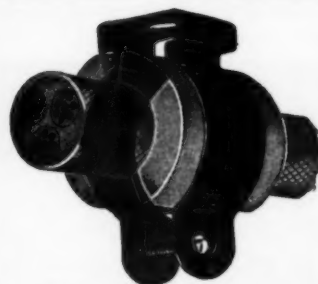
On very large buildings it is considered necessary to have regular places in which to store material. However, on residence and small apartment installations, because of



\*JIFFY CLIP



Hanger without Porcelain Bushing



Hanger with Porcelain Bushing



## Conduit and Cable Hangers

For all trough work or open wiring MINERALLAC Conduit and Cable Hangers save time and trouble. One screw or bolt and they are fastened quickly and securely.

Made of the highest grade spring steel. All sizes from  $\frac{3}{8}$ " to  $2\frac{1}{2}$ " inclusive.

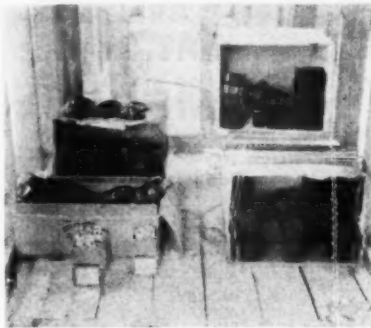
### \*JIFFY CLIPS

REQUIRE only one screw or bolt to make a good secure Job. They save contractors many hours of labor. Accommodate pipe from  $\frac{1}{8}$ " to  $1\frac{1}{4}$ ".

**MINERALLAC**  
ELECTRIC COMPANY  
25 N. PEORIA ST. CHICAGO

the temporary nature of the work, little attention is paid to centralizing the supply of material. Harry Krech, head of the Krech Electric Co., Milwaukee, Wisc., has found that considerable time and the loss of material can be saved if the material is located and kept in a central location on every job.

This company has done an unusual number of apartment house jobs and, wherever possible, all the material is placed in a certain room, both before and after roughing in. This means that there is never any doubt as to



MATERIALS ALL KEPT IN ONE ROOM

where a man must turn for additional material with which to continue his work. Neither is there any chance of going to the shop or sending for items that are already on the job but in some out of the way corner.

Whether the amount of material is



**PORTABLE TOOL RACK:**—Tools are always handy for S. G. Sweetser, of the Reading Terminal Electric Co., Philadelphia, Pa. This convenient receptacle for tools can easily be moved anywhere in the shop, so that the tool wanted is always within sight and reach. The rack is on swivel casters and can be adapted to various types of tools.

## "GALVADUCT"

### What It Is . . . .

"GALVADUCT" is the original galvanized Rigid Steel Conduit. The galvanizing is done by the electro-chemical method, on the exterior surface. The interior is protected with a special enamel.

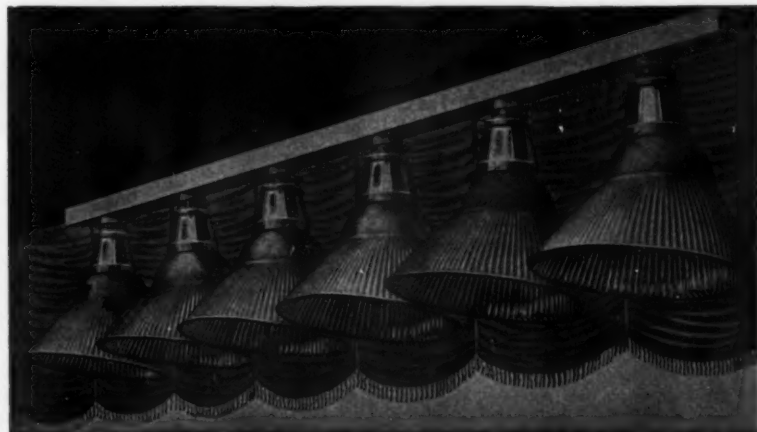
### What It Does . . . .

"GALVADUCT," since the fine quality steel pipe is so thoroughly treated to prevent corrosion, will permanently protect any wiring system, regardless of the existing conditions.



"GALVADUCT" and "LORICATED" are products of

**Garland Mfg. Co., Pittsburgh**



## Sell MORE LIGHT for LESS MONEY

**L**IGHT is what your customers are buying. By selling them the type 2000 show window reflector you assure them of more light for less current consumed.

MARVEL-LITE, "The wonderlite of today" is a reflector that will not come back on you—and will not go back on you on quality, price and selling. It is the highest of quality—prices are in line—service unusually prompt.

**Your Jobber Can Serve You Promptly**

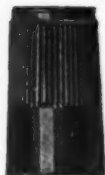
**The MARBELITE ART PRODUCTS CO.**

2652 W. LAKE ST.

CHICAGO

WRITE FOR CATALOG

Pin this to your letter-head. . . . We will know what you want.



### WIRE CONNECTORS

## SAFE SURE SPEEDY



Wire connections are quick and easy to make with S R K Connectors, they're safer, too.

Have a quantity on hand. Order a supply today from your jobber.

Approved by

Underwriters  
Laboratories

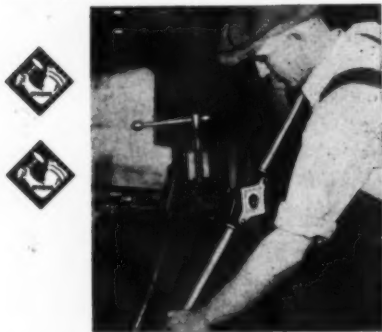
Factory Mutual  
Laboratories

Samples sent on request

**JIFFY WIRE CONNECTOR CO.**  
HACKENSACK, N. J.

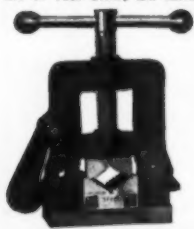
General Sales Office  
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458 Broadway, New York City  
Phone CANal 6-7533 and 6-6186

## ARMSTRONG BROS. Improved PIPE VISE



### Quicker Action—Longer Service

Improved design and accurate machining of the ARMSTRONG BROS. Standard Pipe Vises make them quicker in action—automatic locking, of convenient weight and great strength. Frame and Base are CERTIFIED Malleable Iron (40% to 200% stronger). Jaws are of Tool Steel; are carefully milled, hardened, tempered and tested. The Hooks are unbreakable—drop forged steel, 11 sizes. Distinguished by the Arm-and-Hammer Trade Mark.



Write for Catalog P-10, showing the BETTER Pipe Tools.

**ARMSTRONG BROS. TOOL CO.**  
"The Tool Holder People"

341 N. Francisco Ave.  
CHICAGO, U. S. A.

large or small this policy is pursued and in addition, each style of box, strap, bushing, switch, etc., is kept in a box by itself, the whole being laid out so any man can instantly put his hand on the proper fitting, without any pawing over or sorting out to get six of this, that or the other. When he steps into the room selected to house the material he can see at a glance what he wants and how many there are. The time saved on one visit may not be much, but over a period of months the company is away ahead and the men are much better satisfied.

### Inexpensive Coil Winder

Charles Huse of the Huse Electric Equipment Co., Trenton, N. J., has devised an inexpensive coil winder for small or special jobs. This



### SHOWING HOW THE INEXPENSIVE COIL WINDER IS USED.

consists of a short pipe for an axle, which is fastened in a vise over which is a larger pipe and floor stand, riveted to an old motor rail base. Coils may be wound to any desired size by adjusting the distance between spools on the slot in the rail base. A coil is wound by turning with the right-hand and guiding the wire on the spool with the left.

### Taking Up Floor Boards

Much damage is done to floors in the course of wiring activities, through carelessness on the part of mechanics, or lack of time and proper tools. In most cases the householder will gladly pay for extra time necessary to do a neat job and avoid splitting or marring the floor.

S. Dresdner, New Orleans, La., contractor, furnishes his men with a

## YES! YOU CAN MAKE MONEY

### NOW



### HOW?

### SELLING LIGHT BY THE

## ROOMFULL!

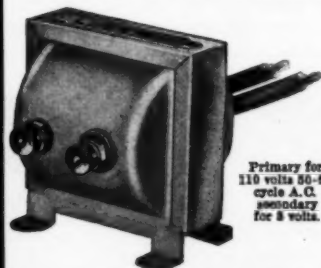
Current issue of Wiremold's famous Business Builder, "The Wiremold Idea," tells how to sell light by the SHOP FULL—STORE FULL—OFFICE FULL—ROOM FULL. Be sure to get your free copy.

## WIREMOLD

WBB HEADQUARTERS

HARTFORD, CONNECTICUT

## TROUBLE—FREE TRANSFORMER



Primary for 110 volts 60-60 cycle A.C. secondary for 3 volts.

Assure dependable service by installing a Liberty Transformer. Approved by National Board of Fire Underwriters and fully guaranteed.

There is a Liberty Transformer, bell or buzzer for almost every requirement.

## LIBERTY INE

CLIP AND MAIL NOW

THE LIBERTY BELL MFG. CO.  
Minerva, Ohio

Gentlemen: Kindly send me bulletins and price lists of your complete line of Bell and Buzzer combination, Bells and Buzzers. Also your new Trouble Free Transformer.

Name.....  
Address.....  
City.....State.....

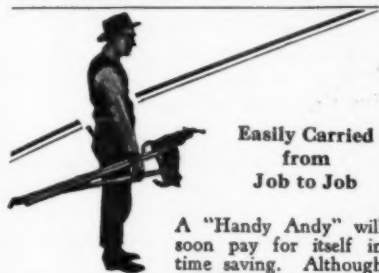


Buy from your jobber



In the electrical field, "since 1857" Klein Pliers have been the standard. Side-Cutting or Long Nose, Oblique-Cutting or Duck Bill—just the Pliers you want for every job.

**Mathias KLEIN & Sons**  
Established 1857  
3200 BELMONT AVE., CHICAGO



Easily Carried  
from  
Job to Job

When Folded  
Will Pass  
Through 16"  
Opening



A "Handy Andy" will soon pay for itself in time saving. Although portable, it is rigid and staunch as a stationary Vise Stand. Made of malleable steel. No loose parts to be dropped or lost. Holds standard hinged or chain vises—no drilling necessary. Order from your jobber. Accept no substitutes.

Height 36 inches  
Weight 32 lbs.

Bending Capacity  
3/4 inch pipe

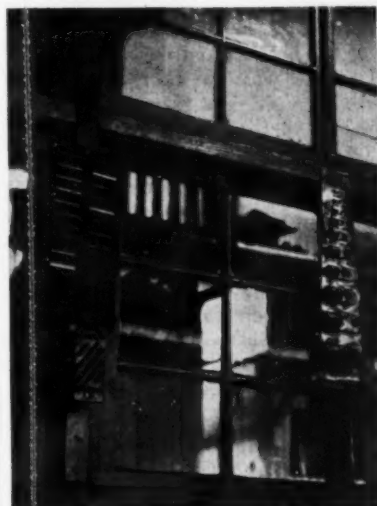
**"HANDY-ANDY"**  
VISE STAND

WESTERN WIRE PRODUCTS CO.  
3rd and Spruce Sts.  
ST. LOUIS, MO. U. S. A.

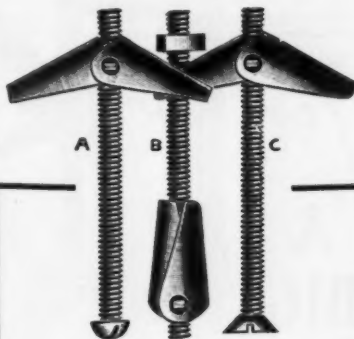


THE ROUND NOSED, THIN SAW  
LEAVES ONLY A VERY FINE  
SEAM.

special saw with rounded nose and made of very thin steel. This saw can be started between the boards without boring. Then a fine seam is sawed along each side of the board to be removed. When this has been done, the board comes up easily and without marring. In addition, Mr. Dresdner states, the work is so neat that he has been on jobs after this operation where he had to ask which board had been taken up.



**AVOIDS WRONG SIZES:**—The Berks Engineering Co., Reading, Pa., has two boards on the side of the shop with various sized lugs and wood splits for motor repair work. These are numbered to aid employees in naming correct sizes.



**GROWING  
IN POPULARITY  
WITH THE TRADE**

for attaching any object to hollow  
walls or ceilings

**PAINE  
SPRING TOGGLES**

Simplest and Quickest in operation  
Any size — Any style head — Any  
finish

Send for free samples  
For sale by your jobber

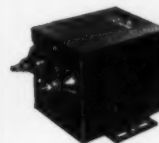
**THE PAINE COMPANY**  
2945 Carroll Ave., Chicago, Ill.  
79 Barclay St., New York, N. Y.

## TRANSFORMERS for Every Job



Signal  
Transformer

When you need a small transformer for Signal work or a large transformer for high tension voltage remember there is a **STANDARD** to fulfill your requirements.



Potential  
Transformer

Write for a catalog of the complete line now. You may have to figure on a transformer job tomorrow.

STANDARDIZE WITH

**Standard**

MAIL THIS NOW

THE STANDARD TRANSFORMER COMPANY,  
WARREN, OHIO

Kindly send me a bulletin describing and illustrating the complete line of **STANDARD** Transformers.

Name.....

Address.....

## A BIG MONEY SAVER

Eliminates triple handling—unwinding—measuring and rewinding wire, thus saving time and money. Manually operated—reels wire into neat coil, automatically counting and registering number of feet. Strongly built of heavy selected materials so as to last a lifetime.

### *It Pays for Itself*

Send for bulletin.  
Write us or your jobber.



**Minneapolis Electric  
and Construction Co.**

86 S. 12th St.  
Minneapolis Minn.

## SHERMAN ANNOUNCES



### NEW SPlicing SLEEVES

With the addition to the SHERMAN line of the Figure Eight Double Tube Sleeve and the Oval Single Tube Sleeve, three SHERMAN splicing sleeves cover practically all contractors' requirements.

Every SHERMAN splicing sleeve is made of the highest quality of material. They are free from burrs and annealed to the proper temper.

Write for a SHERMAN catalog

Order from Your Jobber

**H. B. SHERMAN MFG. CO.**  
BATTLE CREEK, MICH.

## In the Editor's Mail



### Utilities Should Not Call for Bids

Editor,

ELECTRICAL CONTRACTING:

Your editorial on "Range Wiring Costs" in the January issue is a good start. You seem willing to admit that the problem is not yet solved. A satisfactory solution might be far reaching.

Electric ranges are rather heavy current consumers. Power companies are manufacturers of current. They have criticised contractors for neglecting jobs that have come to them on a "Silver Platter." Suppose we turn that around? For about two generations the contractor has been digging up new business in the form of new connected load. He has been spreading it out on a tin plate (can't afford silver) and handing it over to the utility for scarcely a "thank you." This is an amusing situation all right. It is also rather tragic.

We have been selling electric insurance policies for power companies without thought of commission. These policies pay a definite annual income premium. Life insurance companies have always had a definite salesman's commission. They aren't as old as the electric utility but I believe they now get more of the consumer's dollar.

Why not get some data on this subject? Power companies aren't unreasonable. The Utah Power & Light here have a very splendid plan.

Here is another thought. Power companies should never call for bids on electric work. I admit they do, but they should not. They have every known facility for finding out

in advance what a job should cost. They, therefore, are merely betting with an equal or an inferior that he will go broke. That would be all right if their interest in him ceased on the completion of the job. His bankruptcy is their loss.

Power companies should never award a job except on a cost plus basis. They should carefully audit the job after completion to see that the cost and the plus is right. They have no more right to be careless with their contractor outlets than they have to be a party to their insolvency. This is too basically important to be further ignored. We could well afford to canvass every utility executive personally and privately on this one subject.

Yes, range wiring presents an unusual opportunity to get a difficult situation straightened out. That is if we have the brains and the nerve to do it.

CHARLES HARTLEY  
Ogden, Utah.

### Lacks Co-operation from Wholesalers

Editor,

ELECTRICAL CONTRACTING:

Why is it that the electrical jobber will not give the contractor the protection that is given men in all other lines of business.

Electrical contracting has gotten to the point where it is utterly impossible for the contractors to get a job where they can make any money out of it in a legitimate way.

There is a good job coming up in my locality that is to be let at a spe-



TURNER KEROSENE  
No. 45 GASOLINE

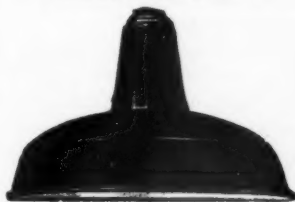
# hot AND HANDY master No. 45

The Turner No. 45 is not an expensive tool. Its price is well within the means of every mechanic. Ask your jobber for prices or write direct for full information.

**THE TURNER BRASS WORKS**  
Sycamore, Ill. U.S.A.

## Get

OUR PRICES



## JACKSON REFLECTORS

You may be called in to figure on a reflector job tomorrow. Play safe, have our catalog and prices on hand. Jackson prices and Jackson quality will help you land the job.

Clip and Mail Today

**JACKSON ELECTRICAL CO.**  
910 W. Van Buren St., Chicago

Please send me bulletin quoting your LOW prices on standard quality reflectors.

Name.....

Address.....

City.....State.....

cified date. This job will have a nice lot of motors and fans besides all the fixtures for an up-to-date job. The electrical contractor gets a set of plans and starts out to figure the job, but fixtures and motors are not included in the specifications.

We have to cut the wiring down to nothing in order to get the job, and when we go up to figure with the owners on the fixtures we find the jobber has had a salesman call on the owners and make him a price on the motor and fixtures at a better figure than they have quoted us on the same equipment, and unless we can salvage something from hanging fixtures and setting motors, we are very much out. And the jobber has sold our customer at a better price than he made to us when we have been buying from this firm ever since the day we opened the shop and when we have a chance to make a few dollars, a wholesale house double-crosses us.

And the hardware man can buy electrical materials as cheap, if not cheaper, than we can. The hardware dealers will sell fans at a better price than I can buy. Why, because he buys at a greater discount than I can. But I cannot buy hardware at all. In a small place where I had a shop for a number of years, the hardware dealers did not stock Winchester ammunition so I ordered direct from factory a case of shot-gun shells. I got them O.K. after they had been shipped to the nearest wholesale house and then to the local hardware man who delivered them to me at retail.

If we got this protection from our wholesale houses there would not be so many bad accounts in the contracting game. And, again, any grocery man, druggist, lumber yard, clothier, or what not can write in to ninety percent of our fixture houses and they promptly furnish him with a catalog of fixtures at the same price we get them at, so consequently they order their own fitments direct. Until we are given some protection from the wholesale electrical house, they cannot hope to have anything else but trouble with accounts from the contractors, as a whole, for they take away the only means we have to make any money in the contracting game.

G. R. HASSELL.

Hobbs, New Mexico.

## When Things Go Wrong

### -ELECTRICALLY Use the Practical POCKET- TESTER



Pat. Oct. 21 '26  
No. 1,775,883

\$150

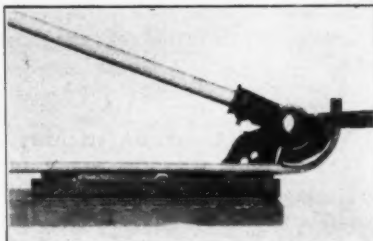
### DETECTS FAULTS

In Light and Motor Circuits,  
Spark Plugs, Household  
Appliances

Tests Any Voltage Between  
100 and 550 A. C. or D. C.—No  
Switches Required

L. S. BRACH MFG. CORP.  
NEWARK, N. J. TORONTO, CAN.

## NEW BLYTHE PIPE BENDER



3 Separate Bends  
 $\frac{3}{4}$ "— $\frac{1}{2}$ " Conduit  
 $\frac{3}{2}$ " and  $2\frac{1}{2}$ " Radius  
ACCURATE AND UNIFORM  
NO DETACHABLE PARTS  
PORTABLE—NO MOUNTING  
SPEEDY LIGHT WEIGHT  
WILL PAY FOR ITSELF  
IN SAVINGS

Write for Details

HARRY BLYTHE  
2914 E. Colfax, Denver, Colo.

Name .....  
Address .....  
City .....State.....



# Manufacturers News

*A department for the announcement of activities of manufacturers that are of interest to contractors, such as changes in executive personnel, branch offices, new products, etc.*

## Wiring Materials Division of NEMA Elects Officers

The following officers were elected by the wiring materials division of the National Electrical Mfgs. Association at a meeting held in New York January 22: F. C. Hodgkinson (American Circular Loom Co.), chairman; J. H. Crawford (General Electric Co.), secretary and H. A. Calderwood (National Electric Products Corp.), chairman of the technical committee.

The division embraces the armored conductor and metallic flexible conduit section, conduit fittings section, electrical porcelain section, non-metallic conduit section, outlet box and switch box section, panelboard and distribution board section, rigid conduit section, non-metallic sheathed cable section, surface raceway section and the rubber covered wire group. Seventy-six companies are included.

An advisory committee and a technical committee were formed consisting respectively of the section chairman and the technical committee chairmen of all sections in the division.

## NEWA to Convene in May

The National Electrical Wholesalers Association will hold its semi-annual convention at The Homestead, Hot Springs, Virginia, May 17-30, 1931.

## Surface Wiring Wall Chart

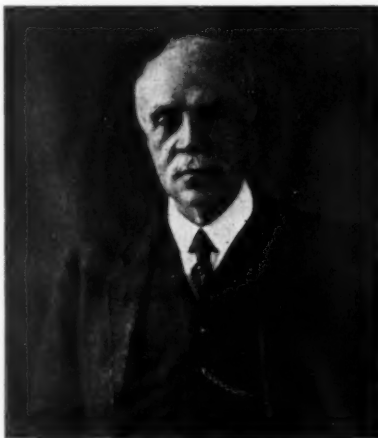
A wall chart illustrating all stock items of 333 metal molding and devices used for surface wiring has been published by National Electric Products Corp., Pittsburgh. The hanger shows installation methods of surface wiring in common use, and should be hung up in every estimating room for ready reference. These installation hints show the easiest, quickest and

neatest way to add a light and increases the possibilities for use of electric current.

Appleton Electric Co., 1701 Wellington Ave., Chicago, manufacturers of threaded and no-thread malleable unilets for rigid conduit have issued bulletin No. 901, listing and illustrating all types of malleable unilets as well as couplings, connectors and clamps, etc., for use with threadless thin-wall conduit (electrical metallic tubing), and copy will be sent to all interested.

## Gerald Waldo Hart

Gerald Waldo Hart, founder and president of the Hart Mfg. Co. died at his home in Hartford, Conn., Sunday, March 8, following a heart attack, at the age of 73.



G. W. Hart

After graduating from Yale in 1878 Mr. Hart became connected with the American Electric Co., New Britain, as the first employee, builders of Thomson & Houston lighting apparatus, and in 1882 was sent to Kansas City to install the first central station to use the Thomson-Houston system for the Kansas City Electric

Co. He remained west a number of years installing other plants. In 1865 he was made assistant general manager of the Kansas City Electric Co. and superintendent of the Edison Electric Light & Power Co. which at that time was formed by stockholders of the former company.

With George S. Hegeman, a classmate at Yale, he perfected a 10 ampere single pole switch and manufacturing facilities were set up in Hartford, Conn., in 1891. In 1898 Mr. Hart left the company to start the Hart Mfg. Co. making heater switches, remote control switches and kindred lines, under the "Diamond H" brand name.

## Westinghouse Changes Personnel in Indianapolis Office

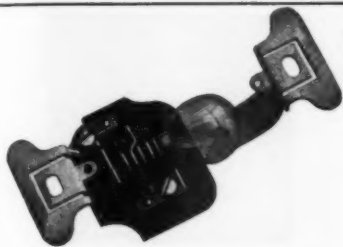
L. B. Mead, formerly manager of the Indianapolis office of Westinghouse Co., has been appointed assistant industrial manager of the northwest district. William J. Morgan will take over Mr. Mead's duties as Indianapolis manager.

Mr. Mead has been connected with Westinghouse Co., since July, 1921, and in 1928 was appointed Indianapolis manager. His last promotion places him in Chicago. Mr. Morgan has been connected with the company in its Indianapolis office since 1921.

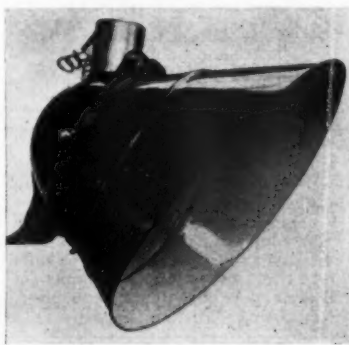
The Chicago offices and warehouse of the Arrow Electric Division and Hart & Hegeman Division of Arrow-Hart & Hegeman Electric Co., Hartford, Conn., are now located at 701-709 W. Jackson Blvd.

The Wheeler Reflector Co., Boston, Mass., announces the appointment of Guy W. Hale to its sales force. Mr. Hale will make his headquarters at the Cleveland office located at 4614 Prospect Avenue.

## New Electrical Products



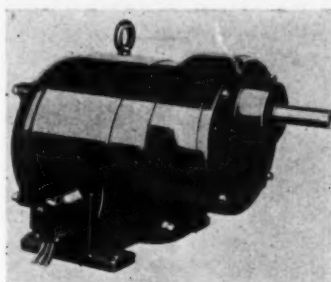
A warning light receptacle is announced by Cutler-Hammer, Inc., Milwaukee, Wis. The body of receptacle is made of moulded Thermoplas with one piece cadmium plated steel mounting bracket. A 2 c.p., 125 v. intermediate base lamp is used in receptacle, held by brass spring clip. Contacts are integral with terminals of one piece brass with large staked terminal screws. Terminals are marked for polarity. Mounting holes are standard box and plate spacings.



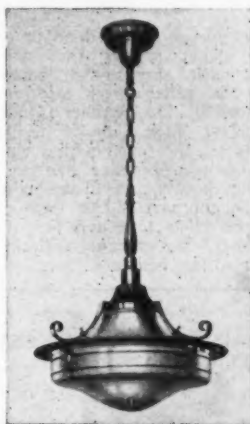
Hill-Standard Co., Anderson, Ind., is manufacturing a porcelain enameled projector, rust-proof, with or without glass front and screen. The dimensions are 32 in. from back to front and 26 in. diameter. The apron lifts on hinge permitting cleansing and changing of lamp when glass or screen is used.



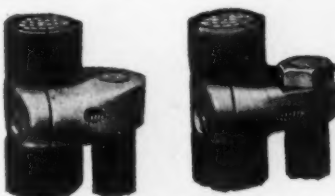
Pass & Seymour, Inc., Syracuse, N. Y., has announced Alabax ceiling unit, No. A1-1477, an all-porcelain receptacle, with pull chain mechanism and 4 inch holder for glassware. This can be furnished in a variety of soft pastel colors.



The Master Electric Co., Dayton, Ohio, announces a geared head motor of parallel shaft type built in sizes from 1/30 to 5 hp., single-phase and direct current; 1/30 to 20 hp., polyphase with interchangeable frames for same hp. and speed in different types of current. Motor is equipped with anti-friction bearings throughout with precision ball bearings on motor shaft and roller bearings on countershaft. Gears are of the continuous tooth herringbone type, and both gears of steel are standard construction. Manufacturers claim that through the use of a unique oil seal arrangement, positive assurance against leakage is obtained, and lubricant need be added only once in every 1000 hours of operation. Gear housing can be arranged so that shaft projects in any one of four different positions, either at top or bottom on the vertical center-line, or to the right or left on the horizontal center-line.



A semi-indirect lighting unit for 1000-watt lamps is announced by the F. W. Wakefield Brass Co., Vermilion, Ohio. This unit has a cradle with four underlapping clasps supporting the globe from beneath which are adjustable by thumb screws. The essential parts of this 1000-watt unit, including canopy and fitter, are of bronze. Size of globe is 21 in.



A parallel or gutter tap, compact, space saving and taped, made in two forms, is announced by Dossert Manufacturing Co., New York City. Type W clamps both conductors by tightening two bolts, and Type X has a branch connection held by a split sleeve and jam nut with set screw.



Gustave Lidseen, Inc., Chicago, is marketing a hand pipe bender which can be attached to bench, post or stand. Bender has two operating handles. No. 1 handle is direct acting, principally used for 1/2- and 3/4-in. pipe. Only one draw necessary for all kinds of uniform bends or offsets with 1/2- and 3/4-in. pipe. No. 2 handle is principally used for 1-in. pipe, as well as the 1/2- and 3/4-in. This pipe bender has a ratchet and toggle attachment, which is actuated by No. 2 handle. Bender with stand weighs 85 lbs., less stand, 65 lbs.



H. B. Sherman Mfg. Co., Battle Creek, Mich., announces a bakelite fixture connector for connecting small wires, which is solderless and tapeless, providing for a pigtail joint. Unit has a bakelite shell with a single bakelite set screw. Bare wire ends, entering a vee shaped opening are wedged securely in place and held fast by set screw. The vee opening is large enough for all wire combinations commonly needed, holding a few as securely as a larger number.

## New Electrical Products



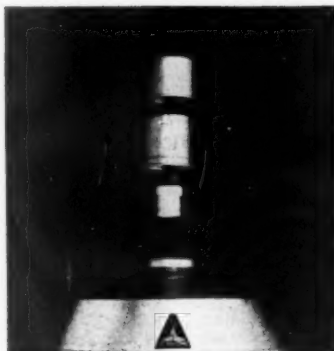
Westinghouse Electric & Mfg. Co., Pittsburgh, has announced type AF-20 open-type floodlight for illuminating football and baseball fields, golf courses, tennis courts, swimming pools, skating rinks and bathing beaches. This unit has a weatherproof socket housing and socket; a porcelain enameled steel reflector and a mounting bow and bracket. It is designed for use with 750, 1000 or 1500-watt PS-52 lamps.



A pendant type push button for controlling small floor operated cranes, is announced by the General Electric Co., Schenectady, N. Y. The push button station is 20 1/4 in. long, 2 3/8 in. wide and 2 1/8 in. deep, less the projection of the buttons. The box is cast aluminum.



Hart & Hegeman Division of the Arrow-Hart & Hegeman Electric Co., Hartford, Conn., has just placed on the market a fan hanger outlet to fit in a standard 4-in. square outlet box. It is an all-bakelite receptacle with finding grooves to guide plug prongs into double-contact jaws. Unit has a brass plate.



Bryant Park Electric Lamp Co., New York City, announces Factorlite industrial reflector. This is an all aluminum reflector using 100 to 500-watt lamps. It is either equipped with standard or mogul sockets for 1/2-in. iron pipe. Diameter of reflector is 16 in. and RLM contour.



Two pieces clamped on to cables with socket screws that are set flush with surface of connector form the panel-gutter tap just introduced by the Frankel Connector Co., New York City. The socket screws are tightened with a wrench. The completed splice has no protruding points, no sharp corners, and is compact. The two cables clamped close together, in parallel, run to the lug of panel without any gutter filling bends.



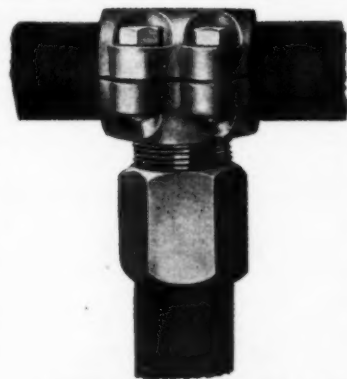
The Rattan Mfg. Co., New Haven, Conn., announces "4 in 1" groundsafe fitting No. 830 taking ground wires No. 14 to No. 6. This unit will fit 1/8, 3/8, 1 and 1 1/4 in sizes of water pipe by a simple turn of the hand. The jaw is so shaped as to secure as perfect a contact on the pipe as is possible.



Permaffector I-505, a companion reflector to Permaffector I-1000, is announced by Pittsburgh Reflector Co., Pittsburgh. This unit is for use with 300 or 500-watt lamp; has a fixed focus and comes equipped with 4 in. round outlet box cover, Mogul receptacle and Form "M" holder. The dimensions are height, overall including 1 3/4 in. outlet box 14 3/4 in.; height of reflector 9 3/4 in. and diameter 16 in. This is a high bay industrial lighting reflector, mounting height from 25 to 50 ft. or more.



A conduit hanger for drilling holes and putting conduit into place is being manufactured by Chicago Expansion Bolt Co., Chicago. This unit has no protruding bolts or nuts and the manufacturer claims it takes less drilling in brick or concrete, being easier to install.



Dossert Manufacturing Co., New York City announces a bolt type cable tap in the form of a split Tee clamp, tightened by four strong bolts. Branch connection is held by a Dossert compression sleeve and nut. Tap is made without cutting the main conductor. Can be supplied in all sizes to take any size main conductor or branch connection.



### For Quick Accurate Hole Cutting

## **Jiffy** Adjustable Cutter



Box Cutter

Cuts perfect round holes from  $\frac{3}{4}$ " to 6" in diameter quickly and easily in sheet metal iron or steel up to  $\frac{3}{4}$ " in thickness.

No manual pressure necessary, spring exerts the pressure.

Ask for information on complete line.

**PAUL W. KOCH & CO.**  
20 N. WACKER DRIVE CHICAGO  
Established 1915

## MARTIN



Portable  
Vise Stand  
and  
Pipe Bender

Made in  
Two Sizes

—small stand  
with chain vise  
2 in. cap.; with  
hinged vise  $2\frac{1}{2}$   
in. capacity.  
—Large stand  
with chain vise  
4 in. cap.; with  
hinged vise  $4\frac{1}{2}$   
in. capacity.

Do away with that  
make-shift bench  
... Carry the  
MARTIN with you  
anywhere... A gen-  
uine time saver for  
cutting and thread-  
ing pipe or conduit  
up to  $2\frac{1}{2}$  in. Sold on  
approval. Write  
today.

**H. P. MARTIN & SONS**  
Owensboro, Ky.

## Beating Competition with Brains

Competition is tough in the electrical contracting business these days; and every day it gets worse. Successful contractors have found they can beat fly-by-night competition best by using their brains, and by educating their responsible employees. You can help your head men to keep abreast of the times and save you money by sending each his own copy of **ELECTRICAL CONTRACTING**.

### Howell New Sales Manager for Sterling Electric

John R. Howell has been appointed sales manager by the Sterling Electric Motors, Los Angeles, Calif. Mr. Howell has been a member of the Sterling sales organization for some time.

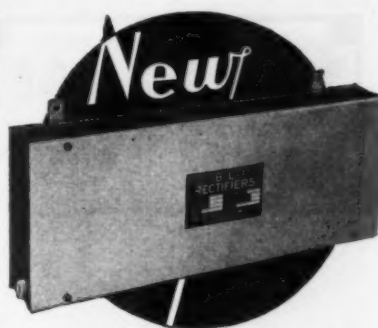
The company also announces the recent establishment of distributors in New York, Philadelphia, Boston, Pittsburgh, Cleveland, Denver and Houston, in addition to distributors already established in Spokane, Seattle, Portland, Phoenix, Salt Lake City, El Paso and Milwaukee.

The following new bulletins and pamphlets are announced by General Electric Co., Schenectady, N. Y.: GEA-962B superseding GEA-962-A, "A.C. Printing-Press Controllers"; GEA-1165 "Type FKO-27 Outdoor Oil Circuit Breakers"; GEA-925B superseding GEA-925A and GEA-1270 "Oil Circuit Breakers"; GEA-132 superseding 68452 "CR2904-A1 Phase Protective Panels"; GEA-1276 "G-E Fractional-Horsepower Motors"; GEA-716C superseding GEA-716B "Type DT-3 Totalizing Relay"; GEA-1336 superseding GEA-788A "General-Purpose Squirrel-Cage Induction Motors"; GEA-1266A superseding GEA-1266 "CR 7505-A2 Photoelectric Relay" and GEA-1080A and GEA-1011B, "Steam Turbines".

American Circular Loom Co., New York City, announces that A. A. Switter will represent the company as agent in the St. Louis territory. Mr. Switter succeeds John S. Berry, who formerly covered that territory.

### Classified Advertising

**Sales Representatives—Wanted:** Nationally recognized manufacturer of electrical signaling devices, contemplating expansion of sales organization invites correspondence from well-established, successful manufacturers' agencies in following territories: Chicago, New England, Western New York, Metropolitan New York, Western Pennsylvania, New Orleans, Denver, Tennessee, Alabama, Georgia and Canada. Replies should detail present lines and principals, exact territory covered, frequency of coverage, men traveled, how long established, nature of contacts with jobbers, contractors, architects, industrials and municipals; also state your facilities for accommodating moderate consigned stock. Present agencies, know of this ad. Address Box 431, Electrical Contracting, 520 N. Michigan Ave., Chicago, Ill.



### Construction on B-L Rectifier Assemblies

The B-L Assemblies illustrated above are now housed in steel cabinets of new design, with added features . . . Cabinets are of heavy gauge steel with aluminum finished covers held in position by 4 screws . . . Mounting lugs conveniently located for easy installation . . . Porcelain bushings for intake and output . . . Ample ventilation on 4 sides. This type of cabinet construction lowers production costs and enables us to quote reduced prices and added discounts to jobbers and contractors. Wherever low-voltage direct-current is necessary, B-L Rectifiers will do the job quietly, efficiently, and usually at a lower cost. They are ideal for replacing storage batteries and furnish dependable rectified current for the operation of electric time clocks, signal systems, etc. Literature explaining their many uses and applications will be sent upon request.

**The B-L Electric Mfg. Co.**

Dept. C  
ST. LOUIS, MO., U. S. A.

## Lowest Prices

ON NATIONALLY  
ADVERTISED RADIO  
and ELECTRICAL  
GOODS

Get it if it's

FREE!

Write for  
this Book

## PARAMOUNT

ELECTRICAL SUPPLY COMPANY  
(WHOLESALE ONLY)  
606 W. ADAMS ST., CHICAGO

# WALLCASE LIGHTING



No. 96

No. 96—Single unwired unit for standard lamps to 60 watt. Length, 9 inches; height, 3 1/4 inches; width, 4 1/4 inches. Standard finish Aluminum spray.



No. 121

No. 121—Single unwired unit for standard lamps to 100 watt. Length, 12 inches; height, 4 1/4 inches; width, 5 1/2 inches. Standard finish Aluminum spray.

## DAY-BRITE

for

Stores Schools Banks  
Theatres Art Galleries  
Interior Electric Signs

Ask your jobber for a Day-Brite catalog

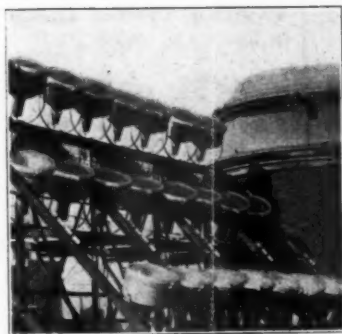
DAY-BRITE COMPANY  
3825 Laclede Ave. - Saint Louis

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# The Growing Demand for LIGHT



Battery of Permaflector Flood Lights illuminating the Edison Building, Philadelphia Electric Co., Philadelphia. 36 Pittsburgh FL-1000 flood lights provide the colored light; 18 FL-1000 flood lights with clear lamps perform the "washing out" function.

Night is day—everything is ablaze with light—brilliant illumination is attracting attention to store windows, office buildings, churches, theatres, roadside service stations, real estate operations, and scenic points of interest.

Electrical contractors are reaping the benefit of this increasing business.

Permaflector Lighting covers all forms of exterior and interior lighting.

Permaflector engineers will submit plans and specifications for any lighting problem.

Permanent reflecting surfaces that never tarnish and the 10 year guarantee insure lasting satisfaction.

*Write for pocket catalogue  
also the Permaflector Magazine*

**PITTSBURGH REFLECTOR COMPANY**  
304 Ross Street Pittsburgh, Pa.

# Permaflector

## LIGHTING

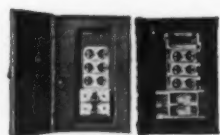
THE SILVERED GLASS REFLECTORS WITH  
THE *Permanent* REFLECTING SURFACE



TRADE MARK

# CODE

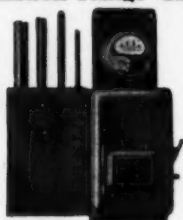
ELECTRIC SWITCHES AND EQUIPMENT

**Branch Circuit Cabinet**

Cat. No. 68

"CODE" Cabinet illustrated has same interior branch blocks as the range cabinet. Busses under the blocks connect them all together, eliminating interior wiring. This cabinet may be mounted under the 7312 Switch for gang installations. Comes complete with "CODE" Fuse Pulls.

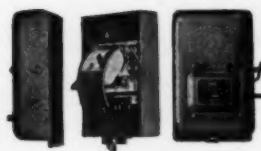
List Price \$7.00

**Combination Range Cabinet**

Cat. No. 687312

"CODE" Range Cabinet has three wire 60 Ampere Meter Test Switch with dead front branch circuit cabinet containing 6 circuits for lights (or the top two fuses may be used for water heater) and a 60 ampere range circuit, wired complete, Meter Leads, "CODE" Fuse Pulls and Meter Board. Circuit conduits enter top of cabinet—no ells or bends necessary.

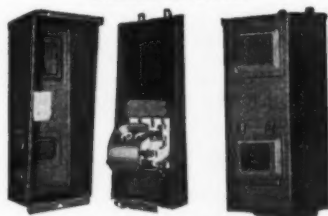
List Price \$17.00

**60 Ampere Meter Test Switch**

Cat. No. 7312

"CODE" Meter Switches have shut-off type end wall. Neutral bar has 4 terminals, three for 70 ampere lugs, for line, load, water pipe or driven ground and one removable ground link that grounds this bar to the switch box. This switch is the same as the one used in the Range Cabinet.

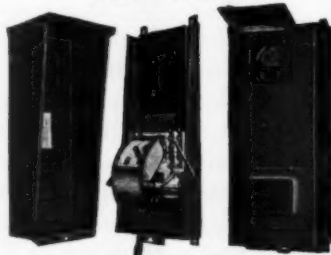
List Price \$10.40

**Outdoor 30 Amp. Meter Switch**

Cat. Nos. K7311, W7311

"CODE" Meter Switches are constructed so that no steel parts have to be removed from the switch for installation, or meter testing. Note how all the connections and test clips are up in the open. Steel shield over the window held with bronze spring hinge. List Price \$10.40

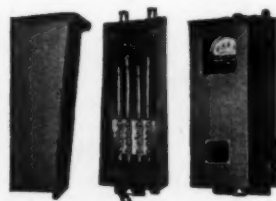
List Price \$10.40

**Outdoor 60 Amp. Meter Switch**

Cat. No. K7312

"CODE" Type construction with the slanting sides and the one piece top facilitates installation, meter testing and makes the sides sturdy around the knockouts.

List Price \$14.00

**Outdoor "Meter Test Type"**

Cat. No. K602

"CODE" 60 Ampere Test Cabinet comes complete as shown. All copper parts cadmium plated. One or two locks or a seal may be used on all "CODE" Meter Cabinets.

List Price \$6.00

Catalogue numbers prefixed with the letter K have knockouts in the sides, back and bottom end and are listed by the Underwriters' Laboratories "For General Use." Numbers prefixed with the letter W are listed by the Underwriters as "Weatherproof," have knockouts in the bottom end only. ALL CABINETS LISTED ARE MADE OF "GALVANNEALED" RUST RESISTING STEEL AND FINISHED IN GREY DUCO.

Patents applied for on all improvements shown, by M. J. Lewis. Write for Net Price Sheets.

*Morgan J. Lewis*  
P.O. Box 6782 Philadelphia, Pa.

# WHY NOT A MODERN FUSE?

*You wouldn't use 1915 —*

Lubricating methods  
Or production methods  
Or wiring methods  
Or safety methods

*Nor would you buy 1915 —*

Automobile tires  
Or pneumatic equipment  
Or line shaft equipment  
Or generating equipment  
Or welding equipment  
Or elevator equipment  
Or die steel

**So why**  
should you penalize  
your plant with  
1915 model

Fuses

?

— when  
you  
can  
get

TH

# BUSS SUPER-LAG



Note the  
"LAG PLATES"  
That's what makes  
the difference.

UNTIL Sept. 1st, 1930, there had been no real change in fuse design, electrically speaking, since about 1915. All approved fuses were pretty much the same. Then came the new BUSS SUPER-LAG Renewable Fuse. It is *electrically different*.

"IT'S ABOUT TIME" said the man who didn't realize all the years of painstaking research behind this scientific improvement.

"JUST WHAT WE'VE NEEDED" said the thoughtful fuse user who knew he was having trouble with fuses blowing on temporary and harmless overloads.

"OH MAN! What a difference!" say the men who are now using BUSS Fuses to increase operating efficiency and reduce fuse bills.

Why shouldn't your plant, too, have the advantage of this "MODERN" fuse—a fuse built to keep the plant operating as well as to protect the equipment—a fuse with a *time-lag* far in excess of any other.

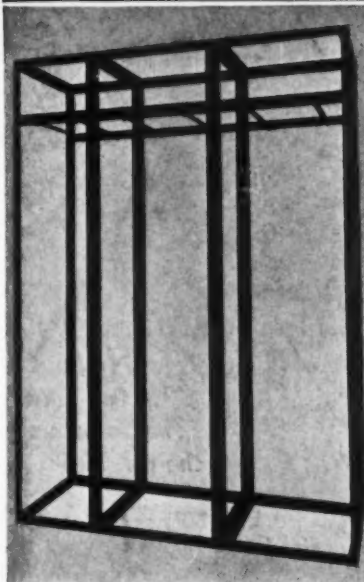
You may order BUSS SUPER-LAG Renewable Fuses from your distributor or if you desire more data, drop us a line.

BUSSMANN MANUFACTURING CO. • ST. LOUIS, MO.  
A Division of the McGraw Electric Company

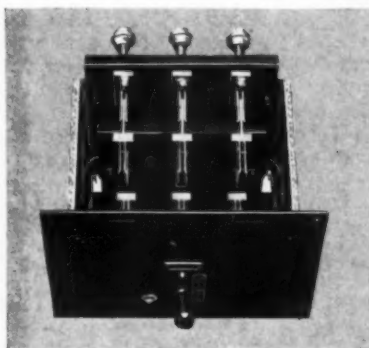
FUSE

# Introducing the SAFtoSWITCH-BOARD

**--Built of Standardized Sections--**  
**--Featuring Ball-Bearing Switches--**



Stock angle iron Switchboard Frames, drilled and tapped for the mounting of Switches, etc. Note, at top, integral Pull Box section with cable racks. Sides and rear of Frames are closed with plates of furniture steel or doors and trims.



Unique Ball Bearing Type DF30 Standardized Switches. Quick-Break—Simultaneous Double Break. Capacities 30-1200 Amp, 600 Volts and less.

Bull Dog's latest development introduces to Switchboard construction the many advantages which the SAFtoFUSE brought to the Panelboard field. The result is the SAFtoSWITCH-BOARD which incorporates all the features of safety, compactness, flexibility, improved appearance, low installation cost and high salvage value.

Bull Dog SAFtoSWITCH-BOARDS are standardized throughout, permitting low cost mass production, and rapid assembly of any combination of Switches and Panels—with space for future circuits. Standards for incorporating Circuit Breakers, Meters, etc., have also been provided.

*Write for further information*

**BULL DOG ELECTRIC PRODUCTS CO., DETROIT, MICH.**

Bull Dog Electric Products of Canada, Ltd., Toronto, Ont.

OVER 25 YEARS OF RESEARCH AND DEVELOPMENT



Patents Applied for



Model DF30 SAFtoSWITCH-BOARD. Note—complete standardization of Meters, Externally Operated Dead Front Circuit Breakers, DF30 Switches and SAFtoFUSE Distributing Panels—space under Meters for installing additional Switches any time. Removable sides and rear doors give access to Busbars, Switches and Wiring. Pull Box at top integral unit.

# BULL DOG SAFtoSWITCH-BOARDS



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